THE CHRONOLOGY OF THE EARLY GREEK NATURAL PHILOSOPHERS

PHILIP THIBODEAU

This book is the first complete collection and analysis of ancient testimony relating to the chronology of the early Greek natural philosophers, astronomers, and geometers who were active before Aristotle. New estimates are given for the dates of thirty-nine different individuals, ranging from Thales to Eudoxus; these include substantial downdatings of the lives of the two Milesian philosophers Anaximander and Anaximenes and significant revisions to the chronology of Pythagoras. It also demonstrates how errors and variants crept into the late chronographical tradition as changes from one dating format to another led to the loss of contextual information.

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Preface

This study originated in a long-standing suspicion that the traditional dates for the natural philosopher Anaximenes of Miletus were too early, given the sophistication of his language and certain advanced features in his astronomy. An initial foray into the relevant evidence brought home to me the extent to which these dates, far from being 'brute facts', are delicate compromises struck between conflicting sets of data. Entailed in these compromises are judgments about the worth of chronologically actionable statements made by authorities both early and late – judgments that presuppose a deep familiarity with their writings and the tradition to which they belong. Nor does the evidence for a single thinker's life exist in isolation; defined in part by its relation to the timelines of his teachers, students, and contemporaries, it can only be properly assessed once the chronology of those other persons has been securely fixed. It became clear to me that, before moving forward with a proposed redating for Anaximenes, I would need a reliable map of the chronological evidence for a range of Greek thinkers. During initial work on this map additional items of interest turned up: systematic anomalies in Olympiad datings, some overlooked pieces of chronological testimony, and scholarly assumptions about method that had never been properly articulated or defended. After two years of research I had in hand, not just a map, but a history of the ways in which chronological reports for the first philosophers changed over time, from the sixth-century BCE down to the Byzantine era – changes which often combined gains in precision with losses in accuracy.

The present monograph serves three purposes. Its first goal is to describe how the language ancient scholars used to describe the chronology of philosophers evolved over time. The earliest indications of chronology, dating from the sixth- and fifth-centuries BCE, were vague, non-numerical expressions, supplemented by a handful of precise age intervals. By the end of antiquity notices of this sort had largely been replaced by precisely quantified indications, most often expressed as Olympiad dates. The transition from the earlier format to the later one was sometimes accomplished in a manner that was faithful to the original data, but more often in ways that generated spurious dates and contradictory testimonia. The opening chapter of this book reconstructs the history of that transition.

The three chapters that follow reexamine the dating evidence for dozens of pre-Aristotelian thinkers in the light of this history. For some (Hecataeus, Heraclitus, Antiphon) it turns out that we know somewhat less about their chronology than has sometimes been assumed. Conversely, new arguments and overlooked evidence allow us to reconstruct timelines that are more narrowly demarcated for figures like Cleostratus, Hippasus, and Democritus. A few substantial corrections to received chronology are also proposed. I will argue that the timelines of Anaximenes and Anaximander should both be lowered by about a half-century; that Pythagoras was born about a decade later, and died about two decades later, than is usually believed; and that Eudoxus was active about a decade earlier than standard references indicate.

The third purpose of this book is to explore some of the new prospects that this reassessment opens up. The discussion of Thales' chronology, for example, uncovers a lost chapter in ancient intellectual history, describing how scholars from the first-century BCE tried to date the eclipse he supposedly predicted by drawing on Babylonian eclipse records. Close study of the chronological evidence for Pythagoras' life allows for a

potential vindication of Eratosthenes' report that the sage won a victory in boxing at the Olympics while still a boy; though usually rejected on the grounds of anachronism, this report can be harmonized with the remaining evidence if we postulate a single misplaced letter-stroke in Eratosthenes' text. The chapter on Anaximander and Anaximenes shows that the former probably led a group of refugees from Miletus to Apollonia during the Ionian revolt, while the latter commented on the disastrous Spartan earthquake of 465. Similar observations on historical context are offered for other early thinkers in the last part of the book.

This is the first in what I hope will be an extended series of studies dealing with the history of early Greek natural philosophy. Although technical chronology is not the most glamorous topic, it needs to be dealt with early if it is to be dealt with at all. I have taken as many opportunities as I could find to comment on the potential significance of my revised datings. But for the most part this book is about dates, the methods of chronography, and the distortions that arose in antiquity as one dating format replaced another. It is my hope that historians of ancient philosophy will appreciate the new and improved timelines laid out in this study, and that historians of various stripes will find something of value in its many observations on the character and quirks of the ancient chronographic tradition.

Preliminary research for this book and for the series that follows was conducted during a split sabbatical that spanned the autumn semesters of 2016 and 2017. I am enormously grateful to my colleagues at Brooklyn College who approved my research leave, and to the City University of New York, which underwrote my time. Special thanks goes to Georgia Irby, Paul Keyser, and John Scarborough, who stimulated my interest in the foundations of ancient Greek science by inviting me to contribute to their various projects, including the *Encyclopedia of Ancient Natural*

Scientists, the *Oxford Handbook of Science and Medicine in the Classical World*, and the *Blackwell Companion to Science, Technology, and Medicine in Ancient Greece and Rome*. Before devoting myself to this subject full time I was primarily a specialist in Augustan poetry with a focus on Vergil; I like to think that the lessons in close reading I received from Michael Putnam, Joseph Pucci, David Konstan, and Alan Boegehold have carried over into this other division of classics. I am grateful to Heinrich von Staden, who first stirred my interest in the study of ancient intellectual history many years ago, and to the late David Pingree, who introduced me to the multi-cultural world of the exact sciences. Victor Gysembergh, Stavros Kouloumentas, Derek Lomas, Constantinos Macris, and Jaap Mansfeld graciously shared their thoughts on early drafts of chapters, directing my attention to important works of scholarship I had overlooked, and spurring me to rethink and reformulate some of my arguments. Levon Avdoyan was kind enough to supply me with an English translation of a crucial Armenian text. Several colleagues from Brooklyn College and the City University of New York Graduate Center have offered me invaluable advice on digital publishing, including Mariana Regalado, Beth Evans, David Aulicino, Amy Hughes, Scott Dexter, and above all Jill Cirasella, who helped guide me through the thorny issues of rights and permissions. I am also very grateful to my former student Mason Barto for assisting with the copyediting and working on the index of passages.

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Introduction

Little by little, through many numbers, correctness comes to be.
– Polyclitus

I don't think I shall give up [the story of Solon's interview with Croesus] for the sake of some "Chronological Tables" which innumerable authorities have been revising to this very day without being able to settle their disagreements.
– Plutarch, *Solon*

Occasionally the historical record allows us to follow events in the ancient world with the same level of daily incident that we might expect to find in a newspaper. Cuneiform tablets preserve the daily reports on the heavens that omen-scholars delivered to the Assyrian kings Esarhaddon and Ashurbanipal; Xenophon's *Anabasis* chronicles the adventures of a bedraggled army making its way home from Mesopotamia; the letters of Cicero sketch out in colorful detail the anxious situation at Rome after Caesar's assassination. But by and large such fine-grain coverage is lacking, and we must count ourselves lucky if surviving texts allow us to determine the exact year and season in which a major historical event occurred. As a general rule, the deeper into the past we go, the greater the degree of uncertainty. The history of Greece in the early archaic era resembles a series of scenes in a crystal ball, hard to make out and even harder to piece together. Around the start of the

sixth-century authors began to weave historical vignettes into their work – portraits of civil strife, narratives of the foundation or destruction of cities – a trend that led to an increase in the number of events later chronographers could attempt to date; accordingly it is only at this time that wars and other major happenings can be entered into the historical timeline with some confidence.

These early authors were all poets; the first book written in Greek prose was composed by Pherecydes the Syrian later in the century.[1] Soon thereafter the first Greek natural philosophers came to prominence, bearing innovative teachings about the gods and nature. Their disquisitions were often esoteric and directed at manifestations of universal order rather than historical contingencies; yet some left revealing clues about their lives in their compositions. The students they attracted made a point of preserving their teachers' texts and transmitting oral accounts of their deeds, in the process accumulating raw materials that future biographers could exploit. Towards the end of the fifth-century historical anecdotes involving Greek intellectuals were committed to writing by authors like Herodotus, Ion of Chios, and Glaucus of Rhegium. A century later, Aristotle and other members of his school composed surveys of the sciences and philosophy that to varying degrees incorporated chronological information. Hellenistic scholars in turn drew on these sources to compose the first biographies of sages, scientists, and sophists, along with philosophical genealogies and histories of particular schools.

The science of chronology was at this point still inchoate; as late as the third-century BCE it was still common for historians to date historical events by verbally describing their temporal relationships rather than by

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[1] The earliest Greek historical narratives were composed in elegiac verse, as Bowie 1986 has shown. For Pherecydes' ethnic label, see the discussion in chapter two, pages 96/7.

citing numbered years. All of this changed when the celebrated scholar Apollodorus of Athens inaugurated the formal study of technical chronology, composing, in a didactic poem called Χρονικά, a capsule history of Greek culture focused on precise dating. The chroniclers, biographers, and succession-writers who came after Apollodorus used his work to establish dates of birth, prime, and death for many notable philosophers, typically expressing them using numbered Olympiads. Around this time a vogue for universal histories took hold which, like literary versions of the ever-expanding Roman Empire, incorporated the histories of other cultures into a semi-coherent whole. Once these various histories were properly dated, the stage was set for the grand achievement of Eusebius of Caesarea, whose *Chronicle* presented the timelines of multiple empires in stunning columnar format. Yet even in Eusebius, amidst all the kings and dynasties, Hellenic, Roman, and barbarian, the philosophers of Greece continued to take up a disproportionate amount of space. The lives of the philosophers had become central elements in the story of humankind; and in turn it became the norm for biographers to give the dates of early Greek thinkers and touch on their place in history.[2]

The aim of this book is to reassess these ancient traditions and reconstruct the objective chronology of the early Greek natural philosophers – broadly defined to include philosophers, physicists,

[2] No single work of which I am aware captures the history of ancient chronography in its full sweep; however, there are many excellent introductions to the subject that come at it from particular angles. See Jacoby 1902 on Apollodorus, Mosshammer 1979 on Eusebius, Christesen 2007 on Olympiad chronology, and Feeney 2008 on chronography in the first-century BCE. Bickerman 1968 and Samuel 1972 offer good technical discussions; Grafton 2010 is an excellent concise introduction.

astronomers, geographers, and geometers.[3] The word 'early' here means 'pre-Aristotelian'. In addition to compiling a body of research on the world of nature whose impact would stretch for nearly two millenia, Aristotle and his school did yeoman work memorializing previous studies of natural philosophy and tracing the evolution of the sciences. Accordingly it seems me that Aristotle is a much better endpoint for a study like this than the historical Socrates, who in effect declared a moratorium on 'the inquiry into nature' until certain basic puzzles about language and knowledge had been resolved. The focus of this book thus lies on the pre-Aristotelians thinkers rather than the Presocratics, and being older than Aristotle is my primary criterion for inclusion.[4] A host of minor figures known to us only from single reports have been excluded from consideration; the list of those who remain includes Thales, Pherecydes, Xenophanes, Pythagoras, Scylax, Democedes, Cleostratus, Anaximander, Hecataeus, Heraclitus, Parmenides, Zeno, Melissus, Anaximenes, Anaxagoras, Oenopides, Empedocles, Alcmaeon, Hippasus, Hippo, Leucippus, Diogenes of Apollonia, Philolaus, Eurytus, Democritus, Meton, Euctemon, Theodorus, Hippocrates of Chios, Theaetetus, Ecphantus, Antiphon, Plato, Archytas, Eudoxus, and

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[3] Left out of consideration here are those individuals who were primarily thought of as physicians or sophists. Dating the medical writers would entail reconsidering all of the individual works in the Hippocratic corpus, a vast project that has already been capably handled by Jouanna 1999 and Craik 2014. The thinkers we call sophists only touched on the exact and natural sciences at the margins. One notable exception to this rule, Antiphon, has been included here; another possible exception, Hippias, has been left out, since the evidence for his contributions is vague. Because the increasingly popular classification of Socrates as an idiosyncratic sophist strikes me as fair, and because the basic chronology of his life is uncontroversial, I have also omitted him.

[4] The latest figure to be considered, Heraclides Ponticus, was either Aristotle's exact contemporary or a slightly older peer.

Heraclides. For each individual all of the relevant evidence for their chronology has been assembled, translated, and discussed.

My reasons for treating this material in a single work are twofold. In part it has been my wish to streamline the presentation in forthcoming volumes of this series by consigning all detailed discussions of technical chronology to a single location where interested readers could dwell on them while others moved on. In addition, it seemed to me that the nature of the subject made it desirable to treat all of the relevant material in one place. Dating clues are often interdependent; so, in cases where all we know about an individual is that he came before or after some better-known figure, this relationship will be more chronologically meaningful if the latter's dates have been clearly defined. There are also many puzzles in the evidence which may appear insoluble in isolation but offer hints to their origins once it is recognized that similar anomalies turn up in multiple locations. Noticing such patterns and thinking through their implications makes it possible to base reconstructions on consistent principles and avoid the ad hoc. Given that our evidence is often in a deplorable state, the best way to approach it, I think, is to be as comprehensive as possible: the more material we take into consideration at once, the more confidence we can have in the results.

In addition to considering the evidence holistically, I have gone about interpreting it in a different manner than has been the norm. The prevailing method usually starts with the ancient Olympiad dates and attempts to derive from them the datings put forward by Apollodorus of Athens, which are then treated as the final word on the subject, or something close to it. I call this *Olympiad-first* dating because such reconstructions typically begin with the various Olympiad dates that have come down to us and treat them as a starting point. This approach goes back to the age of the Humanists and remains in common use

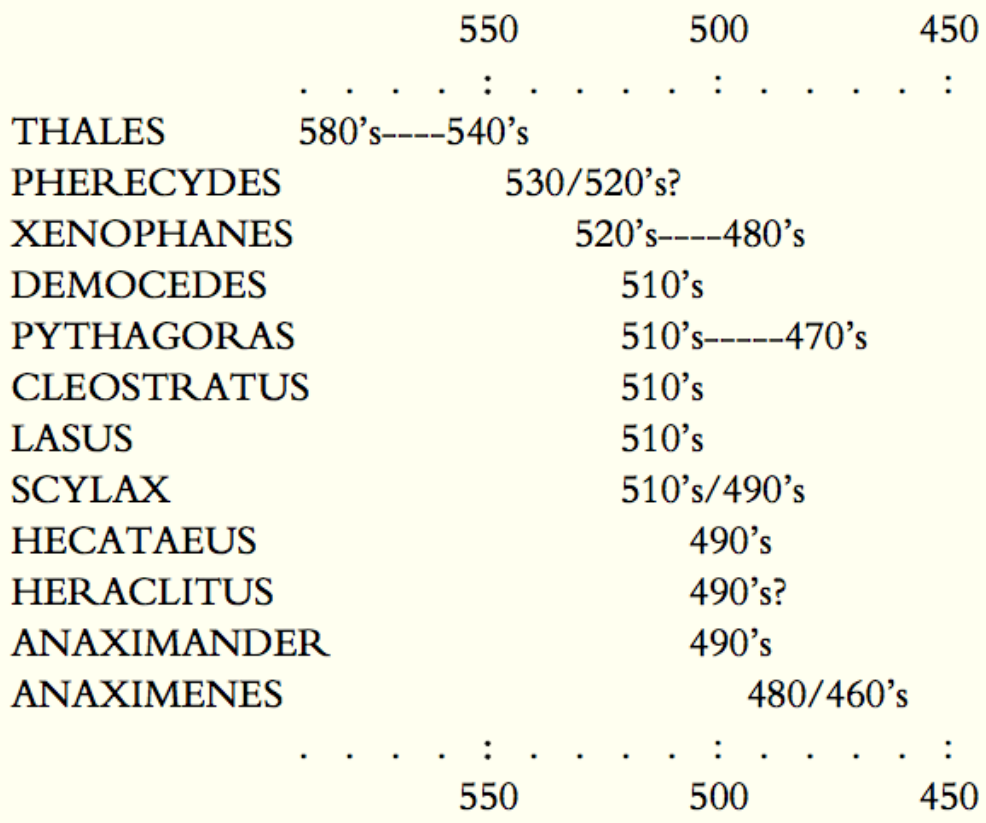
today, having proven its utility in many cases. My approach differs insofar as it consistently takes up first, and gives the most weight to, the oldest surviving evidence for dating – anecdotes from Herodotus, statements by Democritus, stray remarks by the early Peripatetics – and seeks to reconstruct the timelines of our subjects based on this. Only then do I consider, first, how these early traditions were converted into more precise datings by Apollodorus; and, second, how Apollodorus' successors translated his data into Olympiads – often with wildly varying results. I will refer to this approach as the *oldest-first* method. In most cases the datings that result are close to those commonly promulgated; yet there are some dramatic exceptions, and as we shall see, the generally accepted dates for three prominent thinkers need to be revised.

Of these changes, one is small but significant; the other two are quite large. The small change involves Pythagoras, whose life is pushed down a decade or two so that it spans the period ca. 562 to ca. 472 BCE. The larger changes involve the biographies of the two Milesian philosophers Anaximander and Anaximenes. The former, I will argue, was born in the 560's and was still alive several years after 499. His successor Anaximenes was born in the 520's and was still active in the 460's. On this reconstruction Anaximander is about 50 years younger than he is usually taken to be; in Anaximenes' case the downdating is even greater, close to 60 years. The proposed shifts may seem radical since the standard datings have been around for centuries. Nevertheless, the earliest evidence is quite unambiguous and points to the need for the change. A large part of my analysis is devoted to showing how the late tradition developed from earlier evidence by a concatenation of elisions and confusions. In many ways my approach is more historically-oriented than Olympiad-first dating since it pays greater heed to the evolving formats in which ancient scholars expressed their chronological data.

The changes proposed here have important implications for our understanding of the evolution of early Greek natural philosophy. For one, the so-called Milesian school no longer stands out as an avant-garde entity; Anaximander and Anaximenes now appear part of a broader intellectual movement that extended across Ionia and Magna Graecia near the end of the sixth-century BCE. In addition, a rather clear temporal demarcation point can be discerned for the emergence of the first great 'masters of truth' (to borrow Marcel Detienne's felicitous phrase). If we ask when Anaximander, Xenophanes, Pythagoras, Heraclitus, Hecataeus, Scylax, Cleostratus, and Lasus first achieved prominence or were in their prime, the answers turn out to be nearly the same: starting around 520 BCE. Chart 1, its data drawn from the studies that follow, sums up the point in graphic form. Something dramatic seems to have happened in the Greek-speaking world in the last two decades of the sixth-century – something that inspired a new form of talking and thinking about the natural and divine realms. Chronology alone cannot tell us what that factor was, of course, but it can offer us a hint where to look. That this innovation overlapped with the start of Darius' reign, when that king's attentions were focused on the Greek world and when he was developing numerous connections with its rulers and leading persons, suggests that a closer investigation of the interactions between Ionia and the Persian empire would bear fruit; that it picked up speed in the years leading to the Ionian revolt is another coincidence worth pondering. Even if this meeting of two cultures, with its many episodes of collaboration and conflict, should prove insufficient as an explanation for the rise of Greek natural

Chart 1

Periods of Attested Activity for the Earliest Natural Philosophers
(years BCE)



philosophy, a historical narrative of its origins should be able to account for the timing of this development.

No one will dispute that the study of chronology can be a tedious subject, with its many numbers and estimates of the value of different sources. Nevertheless, its results have enormous consequences for the way we picture the evolution of ideas, the interrelationships between thinkers, and the symbiosis between thinkers and their social

environment. My proposals should prompt a reconsideration of the history of ideas during the period of time between Thales and Aristotle. But I will be satisfied if those who remain skeptical find that this study has given them better tools with which to argue their cases – after all, every scholar may have a fondness for his or her own ideas, *sed magis amica veritas*.

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DATING THE EARLY GREEK NATURAL PHILOSOPHERS

How is it possible that we know anything at all about the dates of the pre-Aristotelian thinkers, philosophers, and collectors of lore, some of whom lived more than a century before Herodotus inaugurated the genre of large-scale written history? If one traces the stream of chronological tradition back to its headwaters, a mixture of three kinds of evidence appears: numerical *intervals* – ages, lifespans, or other quantified temporal spans; *synchronisms* – claims that two figures or events overlapped in time; and *orderings* – claims that one individual came before or after another. A small handful of exact intervals are among the most precious pieces of evidence we have for reconstructing early Greek chronology. In four lines the philosopher-poet Xenophanes recorded that he left his native Colophon at age 25 and henceforth spent 67 years wandering the Hellenic world (XENOPHANES 1.B):[5]

[5] References in boldface are to the numbered texts given at the start of the discussion for each thinker in chapters two, three, and four.

> "The years total seven and sixty now
> that have tossed my worried mind over Greek lands;
> and before that, twenty-five more years since my birth,
> assuming I know how to reckon these things accurately."

Note the implication of these words that the author was 92 years old when he composed them – as well as the lack of context, which makes it unclear where in time his life's years fell. Somewhere in his vast corpus of writings Democritus made the claim that he was 40 years younger than Anaxagoras; Aristotle reported that Empedocles and Heraclitus were both 60 when they died, and Plato tells us that Parmenides lived to be at least 65.[6] These intervals are the solid timbers from which the structures of chronology can be built.

While they are of definite magnitude, such intervals are free-floating and do not by themselves allow us reconstruct dates. For that we require synchronisms which can bind them to datable occurrences. In the *Parmenides* Plato helpfully tells us, not just that the elderly Eleatic was 65 years old, but that he was of that age when Socrates was "very young" (PARMENIDES 1). This piece of testimony combines an interval, 65 years, with a synchronism linking Parmenides 65th year to Socrates' youth; knowing when Socrates was born, and being able to estimate what age the phrase "very young" implies, allows us to situate Parmenides' life in a historical timeline. Anchor points and synchronisms are sometimes very precise: the eclipse that Thales allegedly predicted can be dated using modern astronomical methods to May 28, 585 BCE. But most tend to be loose, with considerable room for uncertainty. It was a basic datum for Heraclitus' life that he was actively philosophizing

[6] DEMOCRITUS 1.A, EMPEDOCLES 5.C, HERACLITUS 2, PARMENIDES 2.

during the reign of Darius, who ruled from 522 to 486. Since Heraclitus could have been anywhere from, say, 30 to 60 years old at the time, this means that in principle his birth date could fall anywhere between 582 and 516. It is only by combining multiple indications for multiple individuals that we can narrow down such broad ranges.

By far the most common form of chronological evidence consists of temporal orderings. Orderings can be inferred from certain common forms of discourse, such as polemic: the fact that Heraclitus explicitly criticized Pythagoras, Xenophanes and Hecataeus indicates that he was writing after he had become familiar with their teaching and thus was either younger than or coeval with them.[7] Orderings are also implied in statements about teacher-student relationships. According to Theophrastus, Anaxagoras was a student of Anaximenes, who was in turn a student of Anaximander, who was himself a student of Thales; hence we have the temporal sequence Thales, Anaximander, Anaximenes, Anaxagoras. To describe such relationships Diogenes Laertius and other late writers frequently remark that such-and-such a philosopher "heard" another one (ἀκούω, διακούω).[8] This verb is frequently translated "was a student of," which is accurate enough, provided that we picture a scenario, familiar to us from Plato's dialogues, of oral discussion conducted in a public or semi-public space.[9] But the fact that the act of 'hearing' a teacher is occasionally distinguished from the act of 'following' one shows that 'hearing' need not entail assent.[10] Accordingly in my translations I render the verb ἀκούω in such contexts with the more neutral phrase, "heard so-and-so teach." All that this

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[7] See HERACLITUS 1.

[8] For a good discussion of this usage see O'Brien 1968a, 96.

[9] The translation "was a pupil of" should be avoided, since in English it implies that the auditor was still a child; "pupils" were often in their twenties and thirties.

[10] See e.g. PARMENIDES 5.

word should be taken to imply is that the younger individual heard the elder one discourse and somehow evinced the impact of that teaching on his own thought, whether through acceptance or rejection of their views. As a general rule one can assume that teachers were older than their students, but in some cases men who were more or less exact contemporary had such relationships, and nothing precludes the occasional student being older than his instructor.[11]

Intervals, synchronisms, and orderings were the three formats in which most early and authentic chronological information was presented. The one format that almost never appears is the one we take most for granted today: numbered dates. Our own familiarity with and preference for such dates is something we should be conscious of when evaluating ancient chronographical materials. The main trap that date-based thinking can lead to is this: the *precision* of numerical datings – 753 BCE for the founding of Rome, say, or 432 for the start of the Peloponnesian War – may cause us to assume that they are *accurate*, that is, they derive from valid information and are as close as possible to objective truths. This assumption is valid for the inception of the Peloponnesian War, which derives from Thucydides' contemporary year-by-year chronicle and can be securely related to long-running year counts; but it is not true of the foundation of Rome, which was established by Roman antiquarians using artificial means about seven centuries after the fact. Indeed, precise, universally recognized dates – usually expressed in late sources as numbered Olympiads – did not come into widespread use until the middle of the first-century BCE, after the work of Apollodorus was published. Dates served as a valuable tool for

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[11] The Callias son of Calliades who paid Zeno for lessons (Plato, *Alcibiades* 119a) was certainly older than his teacher, since he fought at the battle of Marathon. I will argue in chapter three that Anaximenes probably absorbed ideas from Parmenides, despite being about a decade older than him.

Greek and Roman scholars who were attempting to weave together the histories of their two disparate cultures.[12] But the lateness of this development means that the lives of the pre-Aristotelian thinkers were not given numbered dates until some four centuries or more after their deaths. Some dates were constructed by artificial means, and many were distorted in transmission; in late sources dates often come in two or three different versions whose origins are obscure. Hence the existence of what might be called the fundamental conundrum of ancient chronography. Chronological data from early sources are generally sound, deriving authority from their proximity to their subjects, but they are also quite vague in the ways that I have just described. By contrast, data from late sources are very precise, insofar as they are numerical, but because they stand at a greater remove from the original data, they are leavened with errors, confusions, and contradictions. In short, *early dates are accurate but vague; late dates, precise but often inaccurate*.

An example may help illustrate this distinction and its implications. Let us consider the origins and the reception of two key dates for Xenophanes, his birth year and his 40th year (which I will refer to interchangeably as a thinker's acme, floruit, or prime year). In this case we have an ideal witness to start with: the words of the poet himself. In the fragment from Diogenes Laertius quoted above, Xenophanes breaks his life into two phases, specifying that he passed 67 years as an exile, traveling through various Greek lands, and had lived for 25 years before that, presumably in his home city of Colophon. This statement does two things: it tells us he was in his 26th year when he began his exile, and 92 years old when he composed these verses. It also hints at a synchronism with whatever historical event was the cause of his exile.

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[12] For a lucid introduction to this scholarly project, see Feeney 2008.

Xenophanes thus offers two intervals and an implicit synchronism. Later authorities from the Classical and Hellenistic eras supplied other synchronisms and orderings for the philosopher-poet. Aristotle and Theophrastus made Xenophanes a teacher of Parmenides; the historian Timaeus observed that Xenophanes was alive in the time of Hieron, who ruled Syracuse during the decade after Xerxes' invasion; the succession-writer Sotion stated that he was a contemporary of Anaximander. A late work preserves a synchronism which probably reflects how Hellenistic scholars thought of his date: "About 514 years passed from the Trojan War to the era of Xenophanes the natural philosopher, Anacreon, and Polycrates, Harpagus the Mede's besiegement of Ionia and the upheaval which the Phocaeans who settled in Massalia were fleeing; Pythagoras was coeval with all of this."[13] As it happens, the time interval of 514 years, which was calculated later, contains a math error; but the multi-person synchronism appears to be valid.[14] Harpagus' conquest of Ionia on behalf of Cyrus can be dated quite confidently to around 545 BCE, while Polycrates' reign as tyrant of Samos began shortly before 530. Some event in Xenophanes' life is being connected here to the period 545 to 530, and it would make sense to assume that the event in question was the start of his exile in his 26th year, since Colophon was one of the Ionian cities that Harpagus set under Persian control. Because this event took place shortly after 545, Xenophanes' year of birth should fall close to 570 and his prime year around 530.

Sometime in the first-century BCE scholars began to incorporate these intervals and synchronisms into a broader historical timeline that expressed Xenophanes' life dates in terms of Olympiads. Accordingly we might expect to encounter reports indicating that Xenophanes was 26

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[13] See PYTHAGORAS 30.

[14] See discussion on pages 141/1.

years old in the 59th Olympiad (544 to 540) and born, say, in the 54th Olympiad (568 to 564). This is not what we find, however. The two earliest witnesses, Clement (who cites Apollodorus as his authority) and Sextus Empiricus, both place his birth decades earlier, in the 40th Olympiad – 620 to 616 (*Stromata* 1.64.2; *Against the Mathematicians* 1.257):

> "Apollodorus says [Xenophanes] was born during the 40th Olympiad and survived until the times of Darius and Cyrus."

> "Xenophanes of Colophon was born around the 40th Olympiad."

Eusebius connected Xenophanes to Olympiad year 59.4 – a date (541) which seems about right, based on our calculations. But what is missing from his notice is any indication that Xenophanes was 26 years old at the time (Jerome, *Chronicle* 103b[p]):

> "Olympiad 59.4: Pherecydes the historian (sic) is considered famous; Simonides the lyric poet and Phocylides are considered famous along with Xenophanes the natural philosopher, writer of tragedies (sic)."

A second entry from the same source has Xenophanes being 'noticed' earlier, in the third year of the 56th Olympiad, 554/3 (Jerome, *Chronicle* 103b[d]):

> "Olympiad 56.3: Xenophanes of Colophon is noticed."

Finally, an anonymous report in Diogenes Laertius mentions the 60th Olympiad but labels it the period of Xenophanes' acme, i.e. of his 40th year, not his 26th (*Lives* 9.20):

"[Xenophanes] was in his prime in the 60th Olympiad."

None of these sources places Xenophanes' birth where we might expect to find it; instead, they locate it in the years 620, 594, or 580.

Clearly something has gone wrong here: the Olympiad datings bear little relation to the dates that the earliest evidence should have generated. What happened to the dates in Diogenes and the first Eusebian entry is the easiest to explain. These texts preserve a dating that one would expect to find – ca. 541 or 540 BCE, right in the middle of the period defined by Harpagus and Polycrates – but labeled as Xenophanes' floruit. The most economical solution is to postulate that somewhere in the course of transmission the original information, which held that Xenophanes was age 26 in that year, dropped out, being replaced by a floruit label. As we shall see, this particular kind of mislabeling was a common occurrence.

The second Eusebian entry – the one indicating that Xenophanes was "noticed" in 554 BCE – is not hard to explain either once the implications of the first mistake are thought through. If 540 is considered Xenophanes' prime year, then he should be born in 579. A person born in those years would be 26 years old in 554/3. Apparently the source Eusebius drew on for this date had applied the indication that Xenophanes was 26 years old to the wrong year of birth. In the process he effectively created a doublet for the first Eusebian dating, one that was 15 years too early.

The pair of entries in Clement and Sextus, with their birth dates ca. 620 to 616 BCE, are more puzzling; how did Xenophanes end up more than 50 years older than the early evidence would suggest, and nearly 40 years older than the mistaken acme in Diogenes implies? An examination of Olympiad datings in late sources reveals a pattern

whereby many are set 40 years too early, especially for figures in the Classical and Archaic periods. Scholars have long recognized the cause of this error – the Greek verb γέγωνε is ambiguous, in some contexts denoting birth, in some cases, being alive, in still others, being in one's prime, at age 40.[15] Apparently the authority that Clement and Sextus drew on misinterpreted a statement that Xenophanes was born (γέγωνε) around 580 to mean that he was in his prime then, and proceeded to count back 10 Olympiads – 40 years – to derive his era of birth. It may seem uncharitable to charge learned chronologists with such elemental mistakes, but examples of this error are so common that it is natural to regard this as another instance. What led to mistakes like this was not so much ignorance or incompetence, *but the loss of information that occurred when one dating format or style was translated into another*.

The final complication is this: Clement ascribes his too-early Olympiad dating to Apollodorus. Whenever we can check Apollodorus' determinations, we find that he used reliable sources and exercised good judgment; accordingly we would expect him to have dated Xenophanes' birth to the 560's BCE, just like we did. In fact, the verbal synchronism reported by Clement does exactly that: it has Xenophanes' life run from the start of Cyrus reign, ca. 560, to the end of Darius' in 486 – a fairly good approximation of his actual lifespan. Moreover, the date 541, when he was 26 years old, did enter the late tradition, appearing in Eusebius, thanks to a source whom it would make sense to assume was Apollodorus. The most economical conclusion is that Apollodorus did get Xenophanes' dating more or less right – it was the process of converting his dates to Olympiads that proved problematic.

These are the sorts of difficulties that crop up when we try to sort out the evidence for dates. Fortunately, most cases are not nearly as

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[15] Rohde 1878 is the classic study of the confusions created by this ambiguity.

complicated as Xenophanes'. In working through this example I have tried to illustrate the approach to reconstructing chronology which I consider most effective, that is, to sort out the oldest evidence first, and only then, once we have established a secure estimate for the earliest scholarly dating, try to make sense of the late datings which are transmitted in Olymiad format. If we tackle the Olympiad datings first, without a clear sense of the early chronological landscape or the kinds of errors late sources are prone to, we risk wandering down many a blind alley.

THE ANCIENT SOURCES: A SURVEY

The division I have been invoking so far between early and late sources is rather crude. In order to nuance this distinction and introduce the figures who contributed in important ways to the ancient chronological tradition, I offer here a survey, in historical order, of those individuals and of the genres in which they wrote. This survey is divided into periods, and attention given to what was new or distinctive about the chronological discourse in each one.

The Early Anecdotalists. In the second half of the fifth-century BCE Greek authors began to record narratives about the early sages, philosophers, and sophists for the first time.[16] Herodotus in his *Histories* relates three stories involving Thales, including one that took place "before Ionia met its ruin" at the hands of Harpagus, ca. 545 (1.170.3):

> "Before Ionia met its ruin, Thales, a man from Miletus who was Phoenician from way back, had very good idea. He told the Ionians to establish a single council at Teos, since Teos is in the middle of Ionia,

[16] For these early biographical forms, see Momigliano 1993, 23–42.

> and to keep all the other city-states inhabited but treat them exactly as if they were outlying villages."

Herodotus' purpose in mentioning the fall of Ionia is to make the sage look prescient, not to establish a *terminus ante quem* for his adult years; all the same, we can elicit such a *terminus* from it, thanks to his mention of the epochal event. Something similar holds true of the dating clues found in other early anecdotes. Two of Herodotus' contemporaries, Stesimbrotus of Thasos and Ion of Chios, related stories in which Anaxagoras, Melissus, and Socrates featured as characters, all datable based on references to famous politicians and historical events. Near the end of the fifth-century Glaucus of Rhegium, author of an influential history of early music, *Ancient Poets and Musicians*, recorded anecdotes involving Hippasus, Democritus, and Empedocles. Empedocles was an especially popular subject for early writers, with the historian Xanthus of Lydia, Gorgias, and Alcidamas of Elaea, a student of Gorgias, joining Glaucus in relating stories about his life. Over time biographical anecdotes about wise men came to function rather like Homeric formulae, as stock stories whose details could be adjusted to fit the immediate context. The historian Theopompus took a collection of anecdotes about Pythagoras recorded by a certain Andron, most involving supernatural predictions, and retold them with Pherecydes as the protagonist (Eusebius, *Preparation for the Gospel* 10.6.5). The fluidity of the tradition thus makes it incumbent upon us to look for the earliest known version of such stories.[17]

Plato and the School of Aristotle. As sources of chronological data the two great fourth-century philosophers Plato and Aristotle can be very frustrating. Plato's dialogues offer indispensable portraits of sophists who

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[17] See Chitwood 2004 on the recycling of anecdotes and the role of *topoi* in Diogenes' biographies (especially pp. 5–11).

were Socrates' contemporaries and geometers like Theodorus.[18] However, they shed surprisingly little light on earlier developments in natural philosophy. The *Timaeus*, Plato's most sustained foray into the sciences, devotes its attention to the theories of a man from Epizephyrian Locri whose very existence as a historical person has been called into doubt; the cosmology at the end of the *Republic* is similarly expounded by an individual, most likely fictitious, known as Er. A passage from the *Sophist* (242c) lists the basic physical principles of several philosophers in what may be chronological order, but only mentions one by name, Xenophanes.[19] An important exception to this unhelpful tendency is the following passage from the *Parmenides* (127a):

> "According to Antiphon, Pythodorus said that Zeno and Parmenides once attended the Greater Panathenaea. Parmenides was a very old man at that point, his hair very white, but he had a distinguished appearance, and was around sixty-five years old. Zeno was then close to forty... and Socrates was very young at the time."

One wishes Plato had written in this vein more often, since this short passage is indispensable for pinning down the dates of Parmenides, Zeno, and several other thinkers whose periods are defined by their temporal relationship to the Eleatics.

Aristotle's works can also prove frustrating to the student of chronography, if for different reasons. Much more interested in the physical theories of his Ionian and Italian predecessors than Plato was, Aristotle gave sustained attention to the history of ideas and possessed a clear sense of the order of the early thinkers. However, his surveys of his

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[18] See now Nails 2002 for the prosopography of Plato's works.

[19] The roster of thinkers appears to run: Pherecydes (?), Anaximander (?), Xenophanes, Heraclitus (?), and Empedocles (?).

predecessors' ideas are organized dialectically, according to topics, and shed only a little light on chronology.[20] The famous survey in *Metaphysics* A of their various 'basic principles' (ἀρχαί) proceeds in the following order:

Thales and Hippo
Anaximenes and Diogenes
Hippasus and Heraclitus
Empedocles
Anaxagoras
Hesiod
Parmenides
Leucippus and Democritus
The Pythagoreans
Alcmaeon
Parmenides, Melissus, Xenophanes
Plato

Chronological sequence is observed in some respects: the first man named, Thales, is the oldest, while Plato, the last named, is the youngest; and whenever thinkers are named in pairs, the oldest usually comes first. In passing Aristotle also notes that Anaxagoras was older than Empedocles and that Xenophanes was Parmenides' teacher.[21] But in all other regards his exposition is arranged by theory-type, rather than historical sequence: one-element hypotheses come first, followed by multiple-element schemes, theories which invoke an efficient cause, the atomic hypothesis, number physics, metaphysical monism, and Plato's

[20] For the nature of his topical categorization, and the background to this procedure, see Mansfeld 1990, 22–83.
[21] *Metaphysics* A3, 984a11, A5, 986b21.

theories about the primacy of forms. The list contains far less chronologically actionable information than it would if it followed strict temporal order; as a result, it can only be used to confirm orderings discovered by other means, not treated as primary evidence for chronology.

The vein of chronological information in Theophrastus' writings was considerably richer. We may start with his doxographic survey *Sense and the Objects of Sense*, which in its opening sentence classifies theories of perception into two basic kinds: those based on similarity between sense organ and sense object, and those based on contrast.[22] In the first part of the treatise Theophrastus sticks to this mode of exposition; but midway through he changes tack and treats his authorities in what seems to be chronological order (names in italics):

Introduction (chapters 1 and 2):
Theories of perception based on principle of similarity.
Theories of perception based on principle of contrast.

Theories of perception based on principle of similarity (3–24):
Parmenides
Plato
Empedocles

Theories of perception based on some other principle (25–58):
Alcmaeon
Anaxagoras
Cleidemus
Diogenes

[22] Section 1; cf. Stratton 1917, 51.

Democritus

Since Anaxagoras, Diogenes, and Democritus fall in correct chronological order, it is fair to assume that Alcmaeon and the otherwise unknown Clidemus do as well; it appears then that we have a five names in correct chronological sequence.

More valuable still for the chronographer are the remains of a long work which ancient sources referred to by various names: *Theories of Nature* (Φυσικαὶ Δόξαι), *Theories of the Natural Philosophers* (Φυσικῶν Δόξαι), or, simply, *Philosophy of Nature/Physics* (Φυσικά).[23] Simplicius quotes repeatedly from this work in his commentary on Aristotle's *Physics* in an order that follows an Aristotelian dialectical scheme.[24] To reconstruct Theophrastus' original sequence we can apply a simple linguistic rule: fragments that introduce persons must come earlier than fragments that name those persons as influences. The resulting series of names yields two philosophical traditions, first the Ionians (Thales to Archelaus), then an Eleatic/Atomist sequence (Xenophanes to Metrodorus), with Diogenes and Plato tacked on at the end as synthesizing eclectics:[25]

> "According to tradition Thales was the first to teach the Greeks natural lore; even if many others came before him, according to the

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[23] For a good review of what is known about this work, in particular its organization, see Zhmud 2006, 157–164.

[24] For analysis see von Kienle, 1961, 58–75.

[25] The only real uncertainty surrounds the placement of Empedocles, who might well have been mentioned later in the list. The order given here for the other figures is the same as that proposed by von Kienle 1961, 61/2, recently endorsed by Zhmud 2006, 160–164.

view Theophrastus shares, he was so different from his predecessors that he eclipsed all of them." (Simplicius, *On Aristotle's Physics* 23.29)

"Those who say [the basic principle] is one, moving, and infinite include Anaximander of Miletus, son of Praxiados, the successor and student of Thales." (24.13)

"Anaximenes of Miletus, the son of Eurystratus, who was a companion of Anaximander, says the underlying nature is one and infinite, just like the latter…" (24.26)

"Anaxagoras of Clazomenae, the son of Hegesibulus, after sharing Anaximenes' philosophy, became the first to revise opinions about basic principles and fill in the missing cause..." (27.2)

"Archelaus of Athens, whom people say Socrates met, and who was a student of Anaxagoras…" (27.23)

"Theophrastus says that Xenophanes of Colophon, the teacher of Parmenides..." (22.27)

"Theophrastus says the following in the first book of his *Physics*: 'Coming after this man' – Theophrastus is referring to Xenophanes – 'Parmenides of Elea, son of Pyres, followed both paths…'" (Alexander of Aphrodisias, *On Aristotle's Metaphysics* 24.5)

"In his *Epitome* Theophrastus says that Parmenides heard Anaximander teach." (Diogenes Laertius, *Lives* 9.21)

> "Empedocles of Acragas was born not long after Anaxagoras. He emulated Parmenides and was close to him, and was the same way with the Pythagoreans, only more so." (Simplicius, *On Aristotle's Physics* 25.19)
>
> "Leucippus of Elea or Miletus – he is given both appellations – after sharing Parmenides' philosophy, did not follow the same path as Parmenides and Xenophanes regarding beings, but, it would seem, the very opposite one." (28.4)
>
> "Similarly Leucippus' companion Democritus of Abdera…" (28.15)
>
> "Metrodorus comes up with basic principles that are almost the same as those of Democritus." (28.27)
>
> "Diogenes of Apollonia, who was more or less the youngest of those who lectured on these subjects, wrote about most of them in an eclectic manner, sometimes talking like Anaxagoras, sometimes like Leucippus." (25.1)
>
> "After prefacing the history of the others, Theophrastus says: 'Plato, who came after them, was the first in fame and ability even if he came later in time, and developed the study of first philosophy in a major way…" (26.7)

These indications of relative order constitute some of our oldest pieces of evidence for the chronology of the pre-Aristotelian philosophers; for more obscure figures like Anaximenes, Leucippus, Metrodorus, and Diogenes they tell us more or less all we know for sure about the eras in which they lived. Theophrastus' treatise would prove enormously

influential, laying the groundwork for all later studies of Greek philosophical schools that focused on doctrines and school traditions.[26] And while it did not record a single date or interval, it nevertheless provided a secure foundation for later chronological reconstructions thanks to its explicit orderings and successions.

Another of Aristotle's students, Eudemus of Rhodes, wrote histories of geometry and of astronomy that similarly recorded the sequential unfolding of ideas.[27] An abridgement of the former work which can be found in the preface to Proclus' commentary on Euclid's *Elements* book one (65.7–66.6) contains many precise indications of chronological order. Appearing at the head of Eudemus list is Thales; "after him" came Mamercus, Stesichorus' brother, and "after them," Pythagoras; following Pythagoras was Anaxagoras, together with Oenopides "who was a little younger than him," who was followed in turn by Theodorus of Cyrene and Hippocrates of Chios, and so on. No dates or time intervals are specified, but the narrative provides a clear generational sequence and identifies which persons within a group of contemporaries were older or younger. Fragments from Eudemus' history of astronomy have unfortunately been torn out of context, limiting their value for our purposes, but some of its notices of 'first discoverers' tell us the order in which astronomical discoveries were made.[28]

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[26] Theophrastus' influence can still be traced in Diogenes Laertius' *Lives*: the Ionian succession in book 2 forms the base to which the Socratics (2), Academics (3 and 4), Peripatetics (5), Cynics (6), and Stoics (7) are attached, while Theophrastus' distinctive Eleatic/Atomist succession is continued by the Pyrrhonist line in book 9, and Epicurus in 10. Book 1, on the Seven Sages, and book 8, on the Pythagoreans, might be seen as 'prequels' to the two Theophrastan lines.

[27] Bodnar and Fortenbaugh 2002, Zhmud 2006, 166–213.

[28] ibid., 228–276.

The Biographers of Pythagoras. Around the time of Alexander's conquest two scholars with Peripatetic affinities, Aristoxenus of Tarentum and Dicaearchus of Messene, wrote influential studies of Pythagoras and the Pythagorean movement. These works marked the beginning of a more systematic approach to the biographies of figures from the past. Aristoxenus' writings on the sage and his followers were particularly influential, and served as the ultimate source for much of the biographical material on Pythagoras preserved in late sources.[29] Among many valuable pieces of testimony the following is key piece of evidence for his chronology (Porphyry, *Life of Pythagoras* 9):

> "At the age of forty, Aristoxenus says, Pythagoras observed Polycrates' tyranny become so oppressive that it was not the right thing for a free-born man to endure his domination and despotism, and so he set sail for Italy."[30]

Like Aristoxenus, Dicaearchus gave considerable attention to Pythagoras' interventions in politics; unlike Aristoxenus, however, he seems to have written in a more jaundiced vein, dropping hints to suggest Pythagoras was something of a con man.[31] And while both men drew on oral traditions for their information, Aristoxenus seems to have had more direct knowledge of the Pythagorean community, thanks to information he received from his father, a friend of the philosopher Archytas, as well as conversations he had with the "last of the Pythagoreans" and the Sicilian tyrant Dionysius II. Together their writings helped initiate a

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[29] Huffman 2014, 285–295.
[30] Reading, for the manuscript's καλῶς, either μὴ καλῶς or κακῶς.
[31] Huffman 2014, 281–285.

vogue for philosophical biographies that can be traced throughout the Hellenistic era.[32]

Shortly after Alexander's death a trio of historians, Timaeus of Tauromenium, Neanthes of Cyzicus, and Duris of Samos, recorded stories about the natural philosophers, once again with a special focus on Pythagoras and his school. Like Dicaearchus and Aristoxenus, Timaeus was a western Greek who spent much of his life in Athens; in his history of Magna Graecia he discussed the Pythagorean movement at length and also wrote about the life of Empedocles. Timaeus used documents whenever he could and, significantly, aspired for great precision in chronology – a harbinger of developments to come.[33] Neanthes seems to have followed Aristoxenus' portrait of Pythagoras in its broad outlines but augmented it with further anecdotes and variant details. Duris of Samos recorded a handful of stories about Pythagoras drawn from local traditions at Samos.[34]

Hellenistic Biographers and Succession Writers. Around 300 BCE the wellspring of oral traditions about the famous sages appears to have dried up. This did not mean that new anecdotes ceased to be appear, only that what was new had to be recovered from older texts – or augmented by scholarly inference and imagination. Authors like Hermippus and Satyrus exemplified this trend, composing biographies in a lively vein that anticipates Plutarch in his more novelistic moods.[35] The following fragment of Hermippus serves as a good illustration of this style (Diogenes Laertius, *Lives* 8.40):

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[32] Momigliano 1993, 74–76.
[33] Schorn 2014, 303–307.
[34] Schorn 2007, and 2014, 307–311.
[35] See, generally, Mejer 1978, 90–93, Momigliano 1993, 79/80.

> "Hermippus says that when the men of Acragas and Syracuse were at war, Pythagoras went out with his companions and stood in the front line of the Agrigentines. They suffered a reverse and Pythagoras was killed by the Syracusans while steering around a bean field; the others, thirty-five in number, were burned alive at Tarentum for plotting to set up a rival government."

This colorful story is actually a complex hybrid of motifs drawn from earlier writers on the Pythagoreans. It is set during a war between Acragas and Syracuse which had no connection to Pythagoras save for the fact that it was fought during the year of his death (ca. 472); in place of the traditional account that Pythagoras starved himself to death in Metapontum, Hermippus has conjured up this fanciful portrait of a nonagenarian warrior. The beanfield motif has been recycled from a story told by Neanthes about a group of Pythagorean travelers who, when ambushed by the soldiers of Dionysius, chose to be killed in place rather than trample on a field of beans in blossom (Iamblichus, *The Pythagorean Life* 189–194). Finally, the detail about Pythagoras' followers being burned alive is a variation on the famous story of the arson attack on the Pythagorean meeting house at Croton; the number of victims is the same, as is the manner of their death, but the setting has been switched to Tarentum, the home city of many early Pythagoreans. Thus, while each detail in this sketch may possess some claim to authenticity, the portrait as a whole is a historical fiction – a realization, one might even say, of Marianne Moore's literary ideal of "imaginary gardens with real toads in them." Further instances of Hermippus' creative revisions of historical traditions are not hard to find.[36] This

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[36] To take just a few examples from Diogenes Laertius: Hermippus transferred a remark about the superiority of men to animals and Greeks to barbarians from Socrates to Thales (1.33); changed several of the details in Heraclides Ponticus'

mode of writing had numerous practitioners, and produced a corpus of pseudo-biographical material that, while entertaining to read, creates endless headaches for the historian. Its existence is one of the main reasons why sorting out what is accurate or not in Diogenes Laertius' lives can be so difficult.

Another genre which became popular in the later Hellenistic era, one with special relevance to chronology, consisted of *Successions* (Διαδοχαί): treatises focused on teacher-student relationships which sought to organize philosophers into schools and broader affiliations such as the Italian or the Ionian branches of Greek philosophy. The succession-writers' project was to a large extent an anachronistic one when it dealt with the pre-Platonic philosophers. While there were undoubtedly teacher-student relationships among them, we rarely hear of a teacher with more than one or two disciples, or any institutional apparatus; instead, as Plato remarks of the early Heracliteans, they "do not originate as students of some other man, but instead spring up naturally wherever the inspiration happens to strike them" (*Theaetetus* 180b). Plato's was the first philosophical school to be characterized by a fixed meeting place, clutches of students, and scholarchs succeeding

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already fabulistic account of Empedocles' treatment of 'the woman who lost her breath' (8.69); made Empedocles a student of Xenophanes rather than Parmenides (8.56); and rewrote Herodotus' account of Zalmoxis with Pythagoras rather than his slave as the one staging his own death (8.41). I would suggest that Hermippus' identification of Pythagoras' father Mnesarchus as a gem engraver (8.1) is a clever confabulation based on the fact that Polycrates, Pythagoras' nemesis, owned a signet-ring which was the subject of a famous story by Herodotus, and had a carved emerald on it (3.40–43). The recent study by Bollansée 1999 rightly stresses Hermippus' erudition but underplays the creative elements in his storytelling.

scholarchs.[37] Arranging early thinkers into schools thus ran the risk of projecting Hellenistic norms onto the world of late archaic and early classical Greece. Nevertheless, the information the succession-writers gathered about student-teacher relationships would prove valuable for chronography, particularly when based on reliable sources like Theophrastus.

One of the earliest and most import writers of *Successions*, Sotion of Alexandria (ca. 200 BCE), introduced an important innovation, making a concerted effort to discover the ages at which certain thinkers died or reached some important milestone in their careers; from our meager harvest of fragments, six record such information.[38] Note the very precise timespans given in the following excerpt from his work (Diogenes Laertius, *Lives* 8.86/7):

> "Sotion in his *Successions* says that [Eudoxus] also heard Plato teach; for at **age 23**, in a state of poverty, he sailed to Athens with the doctor Theomedon, drawn by the fame of the followers of Socrates; Theomedon supported him, and according to some was his lover. Having settled in the Peiraeus he would go up every day to Athens, listen to the sophists there, then go home. After spending **two months** there he went home and borrowed enough from his friends to sail to Egypt, accompanied by the physician Chrysippus, bearing letters of recommendation from Agesilaus to Nectanabis, who set him up with

[37] The Pythagorean society at Croton offered a model for the Academy, but was in its origins more of a political entity, one which did not survive long enough to see a turnover in leadership; see chapter five, below.

[38] For Menedemus (Diogenes Laertius, *Lives* 2.143), Eudoxus (8.86), Pythagoras (8.44, via Heraclides Lembus), Empedocles (8.52, via Heraclides Lembus), Timon (9.112), Epicurus (10.1). For further discussion of Sotion see Mejer 1978, 62–74, and Wehrli 1978.

> the priests. He remained there for **four months and a year**, shaving his chin and eyebrows, and, according to some, writing his *Octaeteris*."

Whether discovered or invented, such specific intervals made it possible to pinpoint the major incident in a thinker's life – and, given a datable event in his biography, to estimate his years of birth or death. The first scholar to recognize and sieze this opportunity was the one we shall consider next.

Apollodorus of Athens. Working in the second half of the second-century BCE, Apollodorus took the results of this biographical and succession literature and folded it into a universal historical narrative that attended closely to datings.[39] The product of his labors was the *Chronicle*, a didactic poem in four books that enumerated major events in Greek political and cultural history over a time span ranging from the fall of Troy to 119 BCE. Historians prior to Apollodorus had written local and large-scale histories that traced events in chronological order, and included stories about famous sages and poets alongside conventional political figures.[40] It was Apollodorus' idea to write a concise universal history of the Greek world that did the same but concentrated on the evidence for their dates. Most of his poem in fact dealt with history in its conventional sense, covering, according to one summary (pseudo-Scymnus, *World Tour* 26–31):

> ...the sacks of cities, migration of armies,
> resettlement of peoples, barbarian invasions,
> naval journeys and expeditions,
> foundations of athletic contests, alliances, treaties, battles,

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[39] Jacoby 1902, 25–35.

[40] For the development of universal history as a genre, see Alonso-Núñez 1990 and Clarke 1999.

> the deeds of kings, lives of prominent men,
> banishments, armies, dissolutions of tyrannies.

The chronology of the philosophers fell under the category "lives of prominent men." At the end of his first book and the beginning of his second Apollodorus gave attention to the most important pre-Aristotelian sages and scientists. He provided basic information about their key dates, sometimes by synchronizing them with other historical turning points, sometimes by identifying the Athenian archon who held office in that particular year. That Apollodorus used archons rather than Olympiads to date events is important to keep in mind. Since the archonship was a yearly office, Apollodorus' original indications must have been precise to one year. Occasionally later sources report these datings with the same level of precision, naming archon years or identifying the particular year within an Olympiad; but more often they are communicated to us via sources that employ whole Olympiads. Since the conversion entails a loss of the specific year, it is important to remember that a report stating that Heraclitus' acme, for instance, fell in the 69th Olympiad tells us only that Apollodorus placed it in one of the years 504/3, 503/2, 502/1, or 501/0, without making clear which one.

Apollodorus' text is mostly lost; the few dozen lines that survive in direct quotation deal mainly with the chronology of Hellenistic philosophers from the third- and second-centuries BCE.[41] Only nine testimonia survive for the pre-Aristotelian philosophers considered in this study, plus three excerpts from his remarks about Empedocles. What emerges from these texts is that Apollodorus was very precise in his indications. Compare the vague orderings from Theophrastus that we looked at above with the following notices:

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[41] See Jacoby 1902, 346, 349, 358, 362, 369, 383, 385, 387, 390, 391.

"According to Apollodorus in his *Chronicle*, [Thales] was born during the first year of the 35th Olympiad." (Diogenes Laertius, *Lives* 1.37; transmitted text)

"Apollodorus says in his *Chronicle* that Anaximander was 64 years old in the second year of the 58th Olympiad and died a little later, having reached his prime roughly when Polycrates was tyrant of Samos." (2.2)

"Anaximenes was born, as Apollodorus says, in the 63rd Olympiad and died around the time Sardis was captured." (2.3; transmitted text)

"Apollodorus says [Xenophanes] was born during the 40th Olympiad and survived until the times of Darius and Cyrus." (Clement of Alexandria, *Stromata* 1.64.2)

"It is said that at the time of Xerxes' crossing [Anaxagoras] was twenty years old, and lived to age 72. Apollodorus says in his *Chronicle* that he was born in the 70th Olympiad, and died in the first year of the 78th Olympiad." (Diogenes Laertius, *Lives* 2.7; transmitted text)

"Apollodorus says that [Melissus] was in his prime during the 84th Olympiad." (9.24)

"[Democritus] would have been born, Apollodorus says in his *Chronicle*, during the 80th Olympiad." (9.41)

> "Plato was born, as Apollodorus says in his *Chronicle*, in the 88th Olympiad, on the 7th of Thargelion, at the time when Apollo is said to be on Delos." (3.2)

> "This same Apollodorus says that Eudoxus was in his prime in the 103rd Olympiad and discovered facts about curves." (8.90)

Many of these entries, though not all, identify a key date with a precision of one year (Thales, Anaximander, Anaxagoras, Plato). Furthermore, historical synchronisms or other bits of biographical trivia are given for most persons (Anaximander, Anaximenes, Xenophanes, Anaxagoras(?), Plato, and Eudoxus). In six out of nine cases, years of birth are spelled out or implied (Thales, Anaximander, Anaximenes, Anaxagoras, Democritus, Plato); in only one case is a year of death specified (Anaxagoras), although a final datable event is given for Anaximander. Apollodorus' dating language thus appears to have combined precision, color, and *variatio*.

Some further insight into Apollodorus' method and language can be gleaned from the quotations dealing with Empedocles (Diogenes Laertius, *Lives* 8.52):

> "Apollodorus the grammarian in his *Chronicle* says:
> 'He was the son of Meton, and to the town
> of Thurii came just after its foundation,
> as Glaucus says.'
> then, a bit below,
> 'Some record that as an exile from his homeland
> he went to Syracuse and fought with them
> against Athens; to me they seem perfectly
> ignorant, for either he was no longer alive then

or super old, something which is not attested;
for Aristotle says he, as well as Heraclitus,
was sixty years old when he died.'
The winner at the 71st Olympic games [496 BCE]
'in the horse-race, was his grandpa, who had the same name...'
and thus at the same time Apollodorus alludes to his time period."

While it is widely accepted that Apollodorus did not employ Olympiad dating, the third quote does speak of an Olympic victory, probably in order to identify the poet's year of birth; Apollodorus' methods of dating might have been more flexible than we think. Also worth noting is Diogenes' claim that Apollodorus "alluded to" the philosopher's time period (σημαινέσθαι) rather than spelling it out. It may be that the language of his poem was sometimes allusive; a certain amount of underdetermination or hedging in Apollodorus' text would go a long way towards explaining why the post-Apollodoran tradition of dating, the chronological vulgate, is so rife with contradictions. There can be no doubt that the later tradition is full of *interpretations* of Apollodoran data; but while some are quite literal, most appear to have been reformatted, recalculated, expanded, compressed, or otherwise modified to the point that they resulted in spurious data.

Apollodorus' Heirs. Very soon after his work came out, Apollodorus' data were translated into Olympiads. The first translator we know of was the succession-writer Sosicrates of Rhodes, active ca. 100 BCE.[42] Diogenes Laertius cites Sosicrates a dozen times for various kinds of information; in six instances – all dealing with the early sages – he

[42] Mejer 1978, 45, 63.

reports his datings, which are of interest for the very exact language that they use, presumably following Apollodorus' lead:

> "[Thales] died at age 78, or, as Sosicrates says, at age 90, since he died in the 58th Olympiad, having lived during the time Croesus, for whom he undertook to cross the Halys without using bridges by diverting its current." (*Lives* 1.37)
>
> "Solon was in his prime around the 46th Olympiad, in the third year of which he was archon at Athens, as Sosicrates says; he also enacts his laws then." (1.62)
>
> "Chilon first became ephor in the archonship of Euthydemus, as Sosicrates says." (1.68)
>
> "Pittacus was in his prime around the 42nd Olympiad; he died in the archonship of Aristomenes, in the third year of the 52nd Olympiad, very old, having lived more than 70 years." (1.79)[43]
>
> "Sosicrates says Periander died 41 years before Croesus, three years before the 49th Olympiad." (1.95)
>
> "Sosicrates says Anacharsis came to Athens during the 47th Olympiad, when Eucrates was archon." (1.101)

In each of these reports Sosicates identifies life events with a precision of one year, whether by naming the relevant archon (Solon, Chilon,

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[43] While not expressly attributed to Sosicrates, this entry is identified as his by Mosshammer 1979, 247, based on the format of the dating and parallels with the datings for the other sages.

Anacharsis, Pittacus) or giving a time interval (Thales, Periander). Sosicrates was clearly attentive to detail and, one assumes, faithful to Apollodorus' indications, though exactly how faithful it is impossible to say.

Thanks to Diogenes Laertius we can also identify, though not name, another chronographer who converted Apollodoran or Sosicratean data into Olympiads. Of the various Olympiad datings for the early Greek philosophers in Diogenes, some are expressly ascribed to Apollodorus (the nine listed above) while others are not. Jacoby believed that the unattributed texts were faithful witnesses to Apollodorus' datings, and printed several of them as such in his edition. But while they are likely based on Apollodoran data, they are not straightforward testimonia. Here are the seven reports:

"[Pherecydes] was alive during the 59th Olympiad." (*Lives* 1.121)

"[Xenophanes] was in his prime during the 60th Olympiad." (9.21)

"[Pythagoras] was in his prime during the 60th Olympiad." (8.45)

"[Heraclitus] was in his prime during the 69th Olympiad." (9.1)

"[Parmenides] was in his prime during the 69th Olympiad." (9.23)

"[Zeno] was in his prime during the 9th (sic) Olympiad." (9.29; transmitted text)

"[Empedocles] was in his prime during the 84th Olympiad." (8.74)

In view of its phrasing, it is possible that the following entry for Melissus also comes from this source:

> "Apollodorus says that [Melissus] was in his prime during the 84th Olympiad." (9.24)

The differences between these entries and the ones expressly ascribed to Apollodorus are stark. No years of birth or death are given, only indications of acmes (plus a date when Pherecydes was alive). Unlike the Apollodoran testimonia, none is expressed with a precision of one year, and there are no attempts at historical synchronism or biographical color; the document Diogenes Laertius drew these datings from was obviously much sparer in its language than Apollodorus' text. Furthermore, Pythagoras and Xenophanes are both placed in the 60th Olympiad, while Parmenides and Heraclitus are set together in the 69th, and Melissus (probably) was paired with Empedocles in the 84th. The allocation of multiple persons to the same Olympiad suggests this text was originally organized as a timeline that gave lists of persons or events associated with a given quadrennium; embedded within longer historical notices, the entries for the philosophers may have looked something like this:

> 59th Olympiad: Pherecydes was in his prime.
> 60th Olympiad: Pythagoras and Xenophanes were in their prime.
> …
> 69th Olympiad: Heraclitus and Parmenides were in their prime.
> …
> 84th Olympiad: Melissus(?) and Empedocles were in their prime.

If this is correct, then the source belonged to a subgenre of universal history that Paul Christesen has called 'Olympiad chronicles'.[44] We would do well to regard these as testimonia for the datings of an unknown post-Apollodoran chronicler, not, like Jacoby did, as Apollodoran testimonia; in what follows I will refer to this source as *Chronographer P*.[45]

Greek chroniclers of this era tended to push their timelines back into the past, particularly for events and persons from the early archaic era, where there were fewer firm historical anchor points. The scholar Alexander Polyhistor, a Greek prisoner of war who was freed by the dictator Sulla and spent the rest of his life in Italy, wrote a work on philosophical successions that Diogenes quotes from several times.[46] In it Pherecydes the Syrian, who is usually dated to the mid sixth-century, was made a student of the sage Pittacus, who was active at the end of the seventh (*Lives* 1.116). Alexander also had Pythagoras visit Babylon to learn Chaldean wisdom during the reign of the Assyrian king Esarhaddon (PYTHAGORAS 13). Since this revised dating would make Pythagoras a contemporary of Numa (both active in the 670's BCE), Alexander may have been seeking to please his Roman patrons by rationalizing an age-old Roman tradition that the sage had been the teacher of the king. Another potential motive for backdating was ethnic

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[44] Christesen 2007, 296.

[45] Who was Chronographer P? Only a handful of popular Olympiad chroniclers predate Diogenes; these included Castor of Rhodes, Diodorus Siculus, Dionysius of Halicarnassus, Thallus, and Phlegon of Tralles (Christesen 2007, 296–346). Dionysius and Thallus do not seem to have had any systematic interest in the biographies of philosophers. Diodorus can be ruled out as a candidate because he dated Pythagoras to the last year of the 61st Olympiad, while Chronographer P placed him in the 60th. That leaves Castor and Phlegon; I cannot see any way to decide between them.

[46] *Lives* 1.116, 2.19, 106, 3.4, 5, 4.62, 7.179, 8.36.

chauvinism. Alexander's younger contemporary Castor of Rhodes turned the entire corpus of Greek mythology into 'history' by providing it with a proper timeline that extended several centuries before the Trojan War. Castor made use of a confabulated Sicyonian king list to date these remote events; as Christesen has noted, Castor probably chose this list because it went back further in time than the better known lists of Spartan and Argive kings, and thus provided Greek history with an antiquity closer to that of Egypt and other Near Eastern kingdoms.[47] Some two centuries later Phlegon of Tralles, a secretary of the emperor Hadrian, wrote an Olympiad chronicle which likewise blended critical and fantastical approaches. On the one hand, Phlegon rejected Castor's historicizing of the era of myth, observing that there was no consistency in the way Castor and his imitators dated events from that age (Photius, *Library* 97). Yet as we shall see below, he also moved Thales' prime back to the year 747, and had him teaching Babylonian astronomers how to forecast eclipses![48] Given the inclination of Greek scholars to push back the timeline of their culture in this way, it is surely no accident that Olympiad dates for early Greek philosophers are often unexpectedly early.[49]

When it comes to the chronology of the early philosophers, without a doubt our most valuable source is Diogenes Laertius.[50] Diogenes' biographies include material from a wide variety of sources, regularly

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[47] Christesen 2007, 315–317.

[48] For a fuller account of Phlegon's work, see page 89.

[49] Flexibility in dating mainly attached to persons and events from the Archaic era. The vulgate historical chronology for Classical and Hellenistic times was, by contrast, quite stable; inconsistencies in chronology are rarely greater than a year or two.

[50] See Mejer 1978, Dorandi 2013, and the new collection of essays in Laertius 2018, 546–622.

cite authorities for information, and often quote original texts with biographical import. Almost everything we know about figures like Sotion, Apollodorus, and Sosicrates comes from his books. His distinctive contribution as a biographer might best be understood as one of highlighting contradictions: rather than provide his readers with another conventional collection of lives, of which there were already many extant in his day, he gave pride of place in his work to the variation in the stories his predecessors told about the most prominent philosophers. The impression he gives of someone unwilling or incapable of exercising judgment is better regarded as a painstaking ecumenicalism, which allows readers to select their own truth from a diverse collection of possibilities. This aspect of his work has its upsides and downsides, but when it comes to chronology his data are utterly invaluable: our knowledge of dates would not suffer terribly from the loss of many of the works described above, but without Diogenes we would be almost blind.

Roman Chronographers. The Roman contribution to chronology was also noteworthy, though largely restricted at first to a trio of individuals working during the middle of the first-century BCE: Pomponius Atticus, Cornelius Nepos, and Marcus Terentius Varro.[51] Cicero's friend Atticus composed a *Liber Annalis* around 47 that chronicled Rome's history with a focus on noteworthy political events. Atticus deployed an innovative page layout in his work, placing his data in parallel columns that made clear in a single glance which events in Greek and Roman history were contemporaneous (Cicero, *Brutus* 15). About a decade earlier Nepos compiled a three-book universal chronicle, one many beginning Latin students are familiar with thanks to the tribute Catullus paid it in his dedicatory poem (1.4–6). Nepos borrowed the title of his

[51] Feeney 2007, 20–28.

work, *Chronica*, from Apollodorus, along with Apollodorus' datings for events of the Greek world, which he aligned with key moments in Roman history. The influence of this work can be traced through later authors like Pliny, Solinus, and Aulus Gellius – as a general rule, any Olympiad dating in a Roman author that seems to derive from Apollodorus is likely to come from Nepos. Major Roman events were interleaved with Greek entries drawn from Apollodorus' history. A passage from Gellius offers what might be regarded as a paraphrase of the work, albeit stripped of most of its precise dating indications.[52] I quote it at length to give a sense of the format of such chronicles; Greek entries are placed in italics to bring out the alternation of Greek and Roman materials (*Attic Nights* 17.21.13–23):

> "About four years later, in the consulship of T. Menenius Agrippa and M. Horatius Pulvillus, during the war with Veii, thirty-six patricians of the Fabii and all their household were surrounded by the enemy near the river Cremera and killed. *Around that time Empedocles of Acragas was flourishing in the study of natural philosophy.* At Rome during those times it is believed that a board of ten men were chosen to write down the laws and that initially they wrote ten tables, with two more added later. *Next, the greatest war ever in Greece, the Peloponnesian, which Thucydides recorded, began almost 323 years after the foundation of Rome.* At this time Aulus Postumius Tubertus became dictator at Rome, who killed his own son with an axe for attacking the enemy in violation of his order… *In this period the tragedians Sophocles and Euripides were famous and well-known, along with the physician Hippocrates and the philosopher Democritus; Socrates of Athens was younger than them, but lived at about the*

[52] Gellius specifically cites Nepos as his source three times (17.21.3, 8, 24).

> *same time… A few years later the elder Dionysius ruled as tyrant, and Socrates of Athens was condemned to death and died in prison from poison.* At about the same time at Rome M. Furius Camillus was made dictator and captured Veii; and not much later there was the Senonian War, when the Gauls captured Rome, except for the Capitoline. *A little later the astronomer Eudoxus was famous in Greece and the Spartans were defeated by the Athenians at Corinth when Phormio was general.* And at Rome M. Manlius… was convicted of conspiring to make himself king and condemned to death."

Varro also did important work on Greek and Roman chronology, his most famous accomplishment being the determination of the exact day of Rome's foundation. Although Varro's texts are lost, Censorinus' *The Day of Birth* serves as a kind of epitome of his writings on topics relating to time. We will consider Varro's contribution to early Greek intellectual history in greater detail when we discuss Thales.[53]

Eusebius of Caesarea. The collation of Greek and Roman timelines in Latin writers marked the beginning of a trend that eventually led to the creation of universal histories in which events from the Greek and Roman world were linked to the histories of various Near Eastern kingdoms including Egypt, Assyria, and eventually Israel. This project of cross-cultural chronological synthesis across culminated in Eusebius' great *Chronicle*, which was published around 325 CE.[54] The second volume of this work consisted of a timeline laid out in multiple columns, one for each of the major ancient kingdoms. As time passed the four oldest nations, Assyria, Israel, Egypt, and Sicyon, were joined by Argos,

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[53] See pages 85/6.

[54] Mosshammer 1979, Grafton and Williams 2008; for an excellent brief introduction, see esp. Burgess 2002, 7–9.

Athens, Sparta, Corinth, the Latins and Romans, and later the Medes.[55] From that point on, as empires began to absorb one another, the number of columns shrank, eventually leaving the Christianized Romans as the universal rulers. Eusebius' work served not just as a reference, then, but as a graphic argument for the operation of divine providence in secular history.[56] This innovative presentation was probably inspired, as Anthony Grafton and Megan Williams have shown, by the Hexapla bible manuscript of his teacher Origen, which painstakingly collated the various Syrian, Greek and Hebrew texts of the Old Testament books. Eusebius drew his material from the universal histories of Alexander Polyhistor, Diodorus Siculus, and Phlegon, as well as works like the Assyrian history of Abydenus and Sextus Julius Africanus' Christian history. For the Greek philosophers he relied at least in part on the *History of Philosophy* written by his younger contemporary Porphyry, of which Porphyry's surviving *Life of Pythagoras* is a very large fragment.[57] While Eusebius' tables or *Canones* are probably the best known part of the work, the introductory materials in the first book of the *Chronicle*, which went by the title *Chronographia*, are also invaluable, containing as they do the most extensive ancient Olympic victor list and long excerpts from earlier chroniclers. Although this book survives in Greek only in fragments, a faithful translation into Armenian offers us a clear sense of its contents.[58]

As impressive as Eusebius' work is at a broad level, it can be quite idiosyncratic in its particulars, something that becomes clear when one examines his dates for the early Greek poets and philosophers. Doublets abound: two dates of recognition are given for Thales, Xenophanes,

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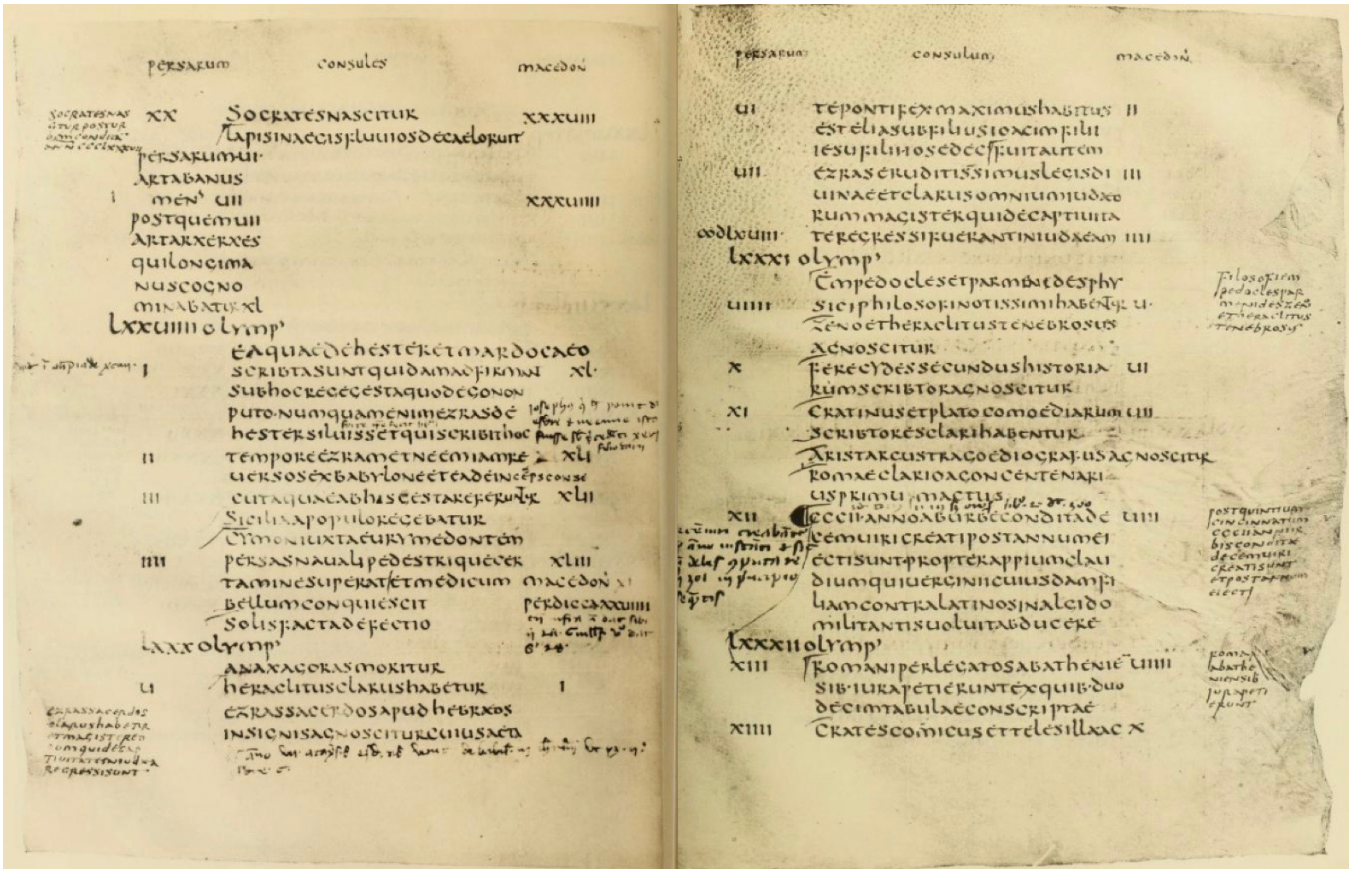
[55] Atticus' work probably had a pair of columns; see Feeney 2007, 27/8.
[56] See e.g. Grafton and Williams 2008, 141.
[57] For Porphyry's *History*, see now Macris 2014.
[58] For further details see especially Christesen 2007, 232–276, 386–407.

Heraclitus, Democritus, and Eudoxus. The titles of the philosophers are frequently distorted, the victim of repeated copying and mistranslation; thus, the theologian Pherecydes the Syrian has become a 'historian' (through confusion with Pherecydes of Athens) and Xenophanes, *qua* philosophical satirist, a 'writer of tragedies'. Many of the dates are rather bizarre if taken at face value: Democritus was supposedly active around 500 BCE, Anaxagoras dead by 463 – something which would make his famous relationship with Pericles impossible – and Eudoxus a grown man during the Peloponnesian War. Of Thales' two floruits, one stands at the perfectly reasonable date 585, while the other falls more than a century-and-a-half earlier, in 747. Thus, for all the comprehensiveness and detail of Eusebius' work, its particular entries need to be handled with a great deal of care, since corruption or confusion is a perpetual possibility.

Eusebius' Heirs. Although the original Greek text is lost, Eusebius' work left a mark on Christian scholarship across the Mediterranean. A Latin version of it made by St. Jerome survives in numerous copies, including one rare manuscript now housed in the Bodleian Library at Oxford which may well have been written in Jerome's own lifetime.[59] The following reproduction of the pages for the years 466 to 451 BCE shows its three-column layout, with one column for the Persians, one for Greco-Roman history, and a third for the royal house of Macedon; entries for the lives of Socrates, Anaxagoras, Heraclitus (left page), and Empedocles, Parmenides, Zeno (right) are not hard to make out:[60]

[59] Fotheringham 1905.

[60] Image from Fotheringham 1905, folio 85.



As noted above, an Armenian translation of Eusebius completed shortly before 600 CE is an especially valuable witness since it contains the *Chronographia*, the book that preceded the chronological tables proper and discussed Eusebius' sources. The anonymous Byzantine chronicle known as the *Chronicon Paschale* reproduces a great many of Eusebius' entries, but with dates that are, for the sixth- and fifth-centuries BCE, anywhere from 7 to 12 years too early. The long and learned *Chronography* of Syncellus also quotes many entries, although the omission of the year labels means that this material is useful for us only as

evidence for the specific Greek wording Eusebius may have employed.[61] An obscure Byzantine compilation called the *Succinct Chronology* (Χρονογραφία Σύντομος) also preserves Eusebian material in paraphrase.[62]

The last text to proffer useful chronological information for the early Greek thinkers is the massive tenth-century encyclopedia known as the *Suda*.[63] Although occasionally a unique source of information for figures from the archaic era, its data need to be treated with great circumspection. The entries for the natural philosophers are a mixed bag – some are little more than paraphrases of Diogenes Laertius' text, while others draw on lost texts like Porphyry's *History of Philosophy*. Because Eusebius also made use of Porphyry's work, matches between his datings and the *Suda*'s are likely an artifact of their common source.[64] It is important to bear in mind that the *Suda*'s bits of unique information are not taken directly from Hellenistic sources, but stand at three or four removes from them. The shortest possible chain of transmission would have had the following stages: Hellenistic authors; Porphyry/Diogenes; Hesychius of Miletus (sixth-century CE), the proximate source for the *Suda*'s biographies; then the *Suda* itself. Its chronological indications, often very precise, exhibit idiosyncrasies that might lead one to believe they were channeling some lost, early authority; but in most of the cases I have examined, the precision turns out to be spurious, the idiosyncrasies nothing but artifacts of format-switching. While they

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[61] For a good account of the early reception of Eusebius' work, see Mosshammer 1979, 37–42.

[62] Bauer 1909.

[63] Dickey 2007, 90.

[64] Both cite Phlegon's early dating for Thales (THALES 7, 11.A), and a too-early date for Anaximenes with a 15-year error (ANAXIMENES 10.A, 11).

merit close study and occasionally prove of great worth, the *Suda*'s dating indications are, more often than not, fool's gold.

As one moves further into late antiquity and the centuries of the medieval era, a gradual but unmistakeable shift can be discerned in chronographic writings away from Olympiad-based timelines and towards a Christian chronology based on successions of kings, anchored by those monarchs who are mentioned in the Bible. It is a side effect of this tendency that figures from pagan antiquity are often dated by synchronisms with this or that Near Eastern king – just as was once the case for many of the Archaic-era individuals mentioned by Herodotus. A nice illustration of this practice can be found in the entries from *The Life and Character of the Philosophers* (*de Vita et Moribus Philosophorum*) long attributed to Walter Burley but now believed to be the composition of an unknown scholar from northern Italy, ca. 1310.[65] Based on a Latin translation of Diogenes Laertius, it reads rather like an updated edition of his work, one augmented by the biographies of further Greek and Roman greats such Pericles, Ptolemy, Scipio, Ennius, Cato, and Galen (as well as the inevitable Zoroaster and Hermes), and filled out with anecdotes culled from Cicero, Valerius Maximus, Justin, Boethius, Augustine, and other Latin authors. While the collection of materials may be a faithful reflection of ancient scholarship, the chronologies no longer bear any recognizable relationship to authentic traditions. Thus, Pythagoras is said to have studied with Archytas in the era of Nebuchadnezzar; Anaximander, Anaximenes, Empedocles, Parmenides, and Archimedes are all assigned "to the time of Cirus, king of the Persians"; and Eudoxus and Aratus are made contemporaries of Darius.[66] The work contains not a single

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[65] See now Copeland 2018 and Grafton 2018, 547/8.

[66] Anaximander (48), Anaximenes (66), Pythagoras (80), Archytas (90), Eudoxus and Aratus (176), Empedocles (190), Parmenides (192), Archimedes (294). While

Olympiad date, even though the relevant entries from Jerome are quoted in Vincent de Beauvais' *Speculum Historiale* (ca. 1260), a major source for the writer, and even though these also appear in Diogenes. That an author as learned as that of the *Vita* should be so careless about the dates of the pagan sages speaks to a general drop off in curiosity about the subject. Interest in their precise position in time would not pick up again until the sixteenth-century, when, following the recovery of Greek literature in western Europe, some of the era's greatest scholars dedicated themselves to the reconstruction of an objective timeline for the classical past.

MODERN CHRONOGRAPHERS

Beginning in the mid 1500's a select group of European antiquarians and savants poured their energies into a project that was in many ways a reprise of Eusebius' – namely, to reconstruct a universal chronology for the human race that was accurate both in its gross features and in its particulars. Towards this end men like Joseph Scaliger, Gerardus Mercator, Isaac Voss, Isaac Causabon, and many others set out to put the study of ancient chronology on new foundations; in "swollen and prodigious volumes, running to hundreds of pages and studded with interminable quotations in Greek and Hebrew," as Anthony Grafton, the great modern chronicler of this period, has memorably described their work, they gathered every scrap of evidence, no matter how slight, and conjured its significance.[67] A welcome by-product of their research

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the loss of contact with original texts caused the doctrines of the Greek philosophers to fall into obscurity, knowledge of their biographies remained fairly strong, thanks in large part to the *de Vita et Moribus*. For a good introduction, see Bühler 1937.

[67] Grafton 1983, 1.

was a renewed scrupulousness in dealing with the datings of the major figures of pagan antiquity, including the Greek philosophers. Humanist discussions of the timelines of the philosophers are for the most part straightforward recitations of the data from the relevant sources – Diogenes Laertius, the *Suda*, Jerome, pseudo-Lucian's *Long Lives*, along with Cicero, Pliny, and 'Origen', as the author of Hippolytus' *Refutation of All Heresies* was then known – pieced together in more or less plausible ways. In cases where the various Olympiad datings were roughly consistent, consensus rapidly formed. Thus, most scholars placed Thales' birth in the 35th Olympiad (640–636 BCE) and his death in the 58th (548–544), declared that Anaximander's life spanned the period from Olympiad 42.3 to 58.2 (610–547), put Plato's years between Olympiad 88.1 and 108.1 (428–348) and so on. If one compares the humanists' datings to those generally accepted today, for the majority of the early Greek philosophers there are few significant differences.

Yet consistency was not always to be found in the ancient tradition, as these scholars were well aware. Scaliger remarked that the testimonia for Anaximenes' life were so contradictory that it would take an Oedipus to solve their riddle.[68] Thomas Stanley was one of the first to observe that because the dating reports for Pythagoras were too spread out in time to fit a single human lifespan, there must have been two different dating traditions circulating in antiquity; the lower one struck him as more accurate.[69] Distinguishing between different traditions and preferring one to the other was henceforth a thing. Making such judgments was not a new practice, to be sure – Roman intellectuals of the first-century BCE recognized that Pythagoras could not have been a contemporary of Numa Pompilius, despite what their ancestors thought, and came to embrace the more up-to-date chronologies of Eratosthenes and

[68] Scaliger 1558, *Animadversiones* 93.
[69] Stanley 1701, 353.

Apollodorus. What was new was the confidence with which scholars made these choices and deployed them for such purposes as the correction and emendation of manuscripts. A good illustration of this involves Diogenes Laertius' discussion of the chronology of Anaxagoras. The transmitted text reads as follows (*Lives* 2.7):

> "It is said that at the time of Xerxes' crossing [Anaxagoras] was twenty years old, and that he lived to age 72. Apollodorus says in his *Chronicle* that he was born in the 70th Olympiad, and died in the first year of the 78th Olympiad. He began teaching philosophy at Athens in the archonship of Callias, being twenty, as Demetrius of Phalarum says in his *List of Archons*; some also say he spent thirty years there."

The Dutch classical scholar Johannes Meursius included a detailed discussion of this text in his *Atticarum lectionum libri IV* (1617), a book of brilliant corrections to texts relating to Athenian history. He began by showing that Anaxagoras must indeed have been born in the first year of the 70th Olympiad (500), and accordingly would have been 20 years old when Xerxes crossed the Hellespont in 480.[70] Now if Anaxagoras passed away in the first year of the 78th Olympiad (468/7), as Diogenes says, he would have only been 32 when he died – a contradiction of the *Suda*, which reported his lifespan as 70 years, and of Diogenes' own claim that the philosopher passed away at age 72. To make up for the forty missing years, Meursius proposed that the 78th Olympiad, the transmitted date, be corrected to the 88th – a small change that yields a very satisfying result, since it renders Diogenes' text internally consistent. A second adjustment also seemed in order. According to Diogenes, Anaxagoras began teaching at Athens at the age of 20 in the archonship of Callias.

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[70] Meursius 1617, 157–160.

The problem with this is that Callias was archon in 456; if Anaxagoras was 20 in that year, then he would have been born in 476, which is far too late to be correct. However, the archon at Athens when Anaxagoras reached his 20th year was a man named Calliades. Since the similarity in their names was an obvious source of potential confusion, Meursius suggested emending 'Callias' to 'Calliades' in order to place Anaxagoras' 20th year where it belonged. These corrections have been endorsed by most subsequent scholars.[71] What lends them their persuasiveness is not just their economy, but the near-total mastery of the relevant material on the part of the scholar which they imply.

Through their collective efforts these humanist scholars raised the study of ancient chronology to unprecedented levels of precision and accuracy. Their work was later continued by such scholars as Richard Bentley, Eduardo Corsini, and Henry Dodwell.[72] The *Summa Chronologica* for early modern studies of the classical timeline was Henry Fynes Clinton's two-volume work, *Fasti Hellenici: the Civil and Literary Chronology of Greece*. First published in 1824, its sober judgments and thoroughness at once drew praise; often cited by nineteenth-century German philologists and historians, it has, through them, come to form the bedrock for modern datings of ancient Greek history.[73] Paying tribute to his classical predecessor, Clinton revived Eusebius' row-and-column format, using its blocks to pigeonhole notices for the archons, events, poets, and "Philosophers etc." of each year, now reckoned in years B.C.; the notices generally quote the relevant chronological texts in Greek or Latin along with brief

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[71] Mansfeld 1979, notes 4 and 31, briefly summarizes their reception. The remainder of that article makes the case, to my mind persuasively, that the emendation of 'Callias' is unnecessary; see page 572.

[72] Bentley 1874, Dodwell 1702, Corsini 1744–1756.

[73] Clinton 1824.

commentary. But while this work may resemble Eusebius' visually, in substance it could not be more different: for instead of Eusebius' rather blasé treatment of dates from pagan history, one finds in Clinton a rigorously worked out timeline based on a careful sifting of all available information and weighing of prior scholarly arguments. That said, some of the chronological mysteries surrounding figures like Pythagoras and Anaximenes remain unresolved; in such cases Clinton is content to acknowledge the contradictions and venture a likely guess. Three centuries worth of meticulous scholarship had resolved many chronological conundrums, but not all.

The first systematic effort to apply the techniques of source criticism to the chronography of the ancient philosophers was made in 1876 by Hermann Diels in his seminal article "Chronologische Untersuchungen über Apollodors Chronika."[74] Diels' work is a classic piece of *Quellenforschungen* which argues that Apollodorus was the ultimate source for nearly all of the Greek dating material one finds in Roman and Byzantine sources. Like Diels' other writings it is distinguished by a powerful combination of learning and insight – as well as the occasional overbold conjecture. In the space of fifty pages he situates Apollodorus in the ancient chronographic tradition, outlines the methods that he used, and offers reconstructions of the Apollodoran datings for Thales, Periander, Xenophanes, Anaximander, Pythagoras, Anaximenes, Anaxagoras, Democritus, Heraclitus, Parmenides, Zeno, Socrates, Empedocles, Gorgias, Melissus, Protagoras, Plato, Aristotle, Epicurus, and Arcesilaus. In passing Diels observed, somewhat provocatively, that Apollodorus' dates are the best modern scholars can hope to achieve.[75]

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[74] Diels 1876.

[75] ibid., 15: "Daher wird es auch für uns gerathener sein im Allgemeinen der bewährten Führung Apollodors zu folgen, als mit unserm lückenhaften Material neue Hypothesen versuchen zu wollen."

Diels' point was not that Apollodorus was omniscient; there were obvious inventions in his chronology, such as those arising from his enabling fiction that the year in which a thinker did something especially notable should be treated as his 40th year. Rather, he believed that because Apollodorus had access to a much wider range of early and primary sources than we do, and because he showed himself by and large to be a conscientious scholar, the dates he determined were better grounded than any we could derive on our own, and represent, in effect, the best possible scholarly guess. In what follows I will call this the Principle of *Apollodorus Sciens*: the assumption that Apollodorus' datings were precisely the ones that we as judicious scholars would make if confronted with all the data that Apollodorus had access to.

The historian Felix Jacoby brought Diels' work to completion by making a comprehensive collection of all the fragments of Apollodorus. First published in 1902, it was and is a masterpiece of lucid erudition.[76] In his edition Jacoby gathered the surviving evidence and presented the fragments in what he plausibly considered to be their original order. When reconstructing biographical data he would generally examine the evidence for an individual's birth date first, followed by his floruit and death. His commentary embraces nearly every late or post-Apollodoran report which has some bearing on chronology; among its very few weak spots is that it sometimes gives short shrift to the evidence of pre-Apollodoran sources. An indispensable resource, no discussion of ancient chronography can afford to ignore it.

Diels' article and Jacoby's collection provided the basis for the chronological discussions of Eduard Zeller and Paul Tannery in their influential histories of Greek philosophy and science, as well as the first modern English history of the Presocratics, John Burnet's *Early Greek*

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[76] Jacoby 1902.

Philosophy.[77] It is by that route that Diels and Jacoby have provided the foundations for what I will call the modern Standard Dating. This dating is the set of Apollodoran dates reconstructed by the two with a few adjustments later scholars have shown necessary – most notably, their floruit dates for Parmenides and Zeno (504 BCE and 464) are usually rejected in favor of ones based on Plato's dialogue. While there is some variation from one scholar to the next, most contemporary references accept the following set of dates:[78]

Thales	625 to 546 BCE
Anaximander	610 to 546
Anaximenes	ca. 585 to 525
Xenophanes	570 to 475
Pherecydes	ca. 540
Pythagoras	570 to 495
Heraclitus	ca. 540 to 480
Parmenides	520 to 440
Anaxagoras	500 to 428
Zeno	490 to 430
Empedocles	490 to 430
Melissus	ca. 480 to 440
Democritus	460 to 370

[77] Zeller 1881, Tannery 1887, Burnet 1908.

[78] Most modern introductions to Presocratic thought feature a timeline of thinkers with dates that are close to these. English-language scholarship tends to take its cues on matters chronological from Guthrie 1962, 1965, and Kirk, Raven, and Schofield 1983, who are in turn heavily indebted to the aforementioned works of Burnet, Zeller, Jacoby, and Diels. The chronological discussions in the *Dictionnaire des philosophes antiques* (1989–2018) and *Brill's New Pauly* (1996–) likewise tend to recapitulate the discussions in Zeller, Jacoby, and Diels.

Plato	428 to 348
Eudoxus	390 to 347

OLYMPIAD-FIRST DATING: A CRITIQUE

The works of Diels and Jacoby are of lasting value, and many of their reconstructions of Apollodorus' datings beyond reproach. But as with any ambitious scholarly project, they harbor blind spots and methodological assumptions that merit critique. A criticism that applies to Diels' reconstructions in particular is that they can be philologically aggressive, with radical emendations sometimes imposed on texts to harmonize discordant evidence. Consider the following passage from Diogenes' life of Anaximenes (2.3):

> "Anaximenes was born, as Apollodorus says, in the 63rd Olympiad and died around the time Sardis was captured."

In order to create a measure of agreement with Hippolytus and the *Suda*, who place Anaximenes' birth about 60 years earlier, Diels proposed *reversing* the two dating indications so that Anaximenes was *born* when Sardis was captured and *died* in the 63rd Olympiad; since this results in Anaximenes dying at the age of 20, Diels also argued that the verb 'was born' (γεγένηται) should bear the meaning 'was active', even though that sense is not otherwise attested for the middle perfect. The swashbuckling boldness of these proposals has, I think, taken attention away from the fact that from a philological point of view they are rather implausible, and, even more importantly, fail to harmonize all of our evidence. The changes do bring Diogenes' text into rough agreement with reports in Hippolytus and the *Suda*, it is true. Yet they require us to reject, on chronological grounds, our oldest surviving piece of

evidence for Anaximenes' date – Theophrastus' assertion that he was Anaxagoras' teacher – and various indications from Hellenistic authors that Anaximenes' teacher Anaximander was active around the end of the sixth-century. They also leave it unclear how Apollodorus arrived at these dates, and on what authority he decided to reject Theophrastus' testimony. A radical rewriting of the text might be justified if it neatly resolved all of the contradictions in our evidence; but since it does not, its radical nature must count against it.

A second issue stems from the fact that Diels and Jacoby were in effect setting out to accomplish two things at once: to reconstruct Apollodorus' datings for the philosophers, and at the same time determine their objective dates. By the principle of *Apollodorus Sciens* having a dual goal of this sort should not present any problems. But the two goals are often in tension due to the way that each relies on different bodies of evidence. When reconstructing Apollodorus' datings, it certainly makes sense to start with the post-Apollodoran evidence. In several cases this evidence consists of two or more tradition that conflict with each other; when this happens Diels and Jacoby will usually posit that one of these is an accurate reflection of Apollodorus' intentions, while the other is somehow corrupt; they then reconstruct Apollodorus' original dating based on what they consider to be the best witnesses. Their judgment on the value of the pre-Apollodoran traditions depends in turn on whether or not it matches this reconstruction. In cases where it does, they conclude, plausibly enough, that Apollodorus was making use of it. In cases where it does not, they generally treat their reconstructed Apollodoran dating as superior, according to the principle of *Apollodorus Sciens*, i.e. he had access to dating information that no longer survives.

This is reasonable way to reconstruct Apollodorus' text; but insofar as it is designed to elicit an objective chronology, it goes at things the

wrong way. Because it takes up the post-Apollodoran sources *first*, it by default affords them the most weight, allowing them to define the range of what is possible. Yet these are the sources that stand at the greatest distance in time from the original events, and have gone through the most translations of format. In order to establish objective dates for the early thinkers, it would be more prudent to start with the loose but authoritative datings of our oldest sources and try to reconstruct how these changed over time. The post-Apollodoran data have an important role to play simply because they are so plentiful; but it should be their job to offer confirmation for whatever chronology the earliest sources suggest, not to furnish grounds for rejecting the latter. The approach taken by Diels and Jacoby can lead to some odd results. For one, the Hellenistic consensus about Anaximander's historical era (late sixth-century) is dismissed due to its conflict with Olympiad dates that were calculated later by an unknown epitomator of Apollodorus. The testimony of Theophrastus that Anaximenes taught both Anaxagoras and Diogenes is likewise rejected, and the text of Diogenes Laertius completely rewritten, on the authority of Olympiad datings preserved in Hippolytus and the *Suda*. An artificial interpretation of the late Olympiad dates for Pythagoras is invoked to discount the testimony of two early authorities, Alcidamas and Timaeus, who maintained that Empedocles met with Pythagoras while the latter was still alive. By giving our oldest evidence more weight, we can avoid such topsy-turvy judgments, and better explain how the late datings came to be.

It is not my aim in this study to reconstruct Apollodorus' dates for the major pre-Aristotelian thinkers – oftentimes his datings do emerge clearly, but frequently it is impossible to tell whether a transmitted date owes more to Apollodorus or to one of his successors. Instead it is my goal to determine their objective chronology with as much precision and accuracy as our sources will allow. Given that previous studies have

focused so much attention on Apollodorus, this monograph is in a way the first one to make determination of the *objective* dates of the pre-Aristotelian natural philosophers its main goal.

OLDEST-FIRST: AN ALTERNATIVE APPROACH

The approach to dating which I adopt in this study observes a set of principles that follow from the criticisms made above. First, our reconstruction of objective dates should give preference to the testimony of the oldest sources. The reasons for this should, I think, be fairly obvious. These sources were much closer in time to the figures and events at issue and inhabited a tradition that was correspondingly richer and less filtered – much of it, no doubt, still oral in nature. As noted above, valid oral traditions for the biographies of the early philosophers began to dry up around 300 BCE. Chronographers in later centuries might have had more sophisticated tools and frameworks to work with, but for their raw materials they were entirely dependent on their predecessors; Apollodorus had no source of chronological data other than older writers. It is true of course that the literature he had access to was much more complete than the body of works we know; so in theory it is possible that when he (supposedly) rejected the testimony of a Plato or Theophrastus regarding chronology, he did so for good reasons, giving preference to the claims of older witnesses who are now lost. But such a scenario strikes me as highly unlikely. Diogenes Laertius, for one, was an enthusiastic collector of alternative histories and minority opinions, and surely would have made note of any source important enough to attract Apollodorus' attention. As it happens, the early Hellenistic tradition appears to have been quite consistent; for only a handful of figures like Pherecydes and Empedocles was there any substantial difference of opinion about dates. As a general rule, then,

whenever there is a conflict between pre-Apollodoran sources and later Olympiad datings, the former should be given the most weight.

A second rule relates to the translation of chronographical terms. There are in Greek six different verbs or verbal usages commonly deployed as predicates in datings:

a. ἦν, *fuit*: 'was' i.e. 'was alive'
b. ἐγνωρίζετο, *agnoscitur*: 'was noticed'
c. ἐγίνετο, ἐγένετο, γέγωνε: 'was around'

d. γεγένηται, γέγωνε, *natus est*: 'was born'
e. ἤκμαζε, *floruit*: 'was in his prime'
f. θνήσκει, *moritur*: 'dies'

There is a tendency for scholars to interpret items a., b., and c. as synonyms for e. and render them as 'was in his prime', i.e. age 40. This temptation should be resisted. For one thing, it is not faithful to the original language. Just as importantly, it can lead us to impute dating indications to our sources that were never there to begin with. Often enough when a source indicates that so-and-so was 'alive' during a given Olympiad, it means nothing more than that: the evidence of the tradition merely allowed the chronographer to state that the individual was alive at that time, thanks to the presence of some datable event in their biography, without making it possible to say how old he happened to be then. Interpreting these phrases as if they were floruit labels can make it appear as if ancient chronologists had access to better dating information than they actually did. This is not to say that the underlying dates were never floruits, of course, only that they should be judged on a case-by-case basis; the equation should not be automatic.

A third important principle is that we should preserve the language of the dating indications transmitted by our manuscripts whenever possible and eschew emendation unless needed to avoid outright nonsense. Naturally there are plenty of cases where corruption, error, and confusion have disfigured the manuscript tradition, and it is critical that these be pointed out. Yet when emending a unanimously attested reading, extra caution is in order. Correcting such a text assumes that we know that the error was introduced by the author himself, as opposed to one of his sources – a kind of knowledge that we rarely possess. Moreover, emendations whose validity is not absolutely guaranteed will detract from the quality of a text rather than add to it, by repressing pertinent information. The more prudent course of action is to highlight unexpected statements and attempt to explain how they arose. After tracing back the origins of several dozen dating reports I have come to the conclusion that it is very rare for the *numbers* in Olympiad dates to be subject to transcription errors. Instead, variants typically came into existence *due to changes in format or in labeling* – changes that then lead to the loss of essential contextual information.

The six verbal labels (a.–f.) are particularly vulnerable to reinterpretations which alter the ostensive chronology. In one common kind of mislabeling, a key date, one that is not an acme, would be labeled as if it were. We saw an example of this above in discussing the evidence for Xenophanes: what should have been his 26th year was instead presented by Diogenes as his acme or 40th year, which had the effect of moving his year of birth back by 15 years. Other examples of mislabeled key dates appear in the Olympiad datings for Melissus, Empedocles, and Eudoxus.[79]

[79] See pages 164, 185, 221.

Another opportunity for confusion arose when a date of birth was mistakenly interpreted as an acme. Past-tense forms of the Greek verb γίγνομαι can be ambiguous, designating either the birth of the subject (d.) or the time when he or she happened to be alive (c); scholars must use whatever clues are available in context to decide whether the sense is 'was born' or 'was alive'. The usage of the verb can vary from author to author or even within the same text: after reviewing all the appearances of γέγωνε in the *Suda*'s biographical entries, Erwin Rohde concluded that in 105 cases it definitely or probably indicates an acme dating, while in 10 cases it definitely or probably indicates a date of birth.[80] In Apollodorus, by contrast, the ratio is reversed: aorist or perfect forms of γίγνομαι usually indicate birth. Ancient writers, when confronted with the same ambiguity, faced the same need to choose, and sometimes chose wrongly. In practice their mistakes inevitably went in one direction, a birth date being interpreted as a floruit; that this should be the prevailing direction of misinterpretation makes perfect sense, given the shift in the usage of γέγωνε just noted from the time of Apollodorus to later centuries. So, whenever a text labels as an acme a year that one would expect to be a year of birth, or reports a year of birth that appears to fall 40 years too early, it is reasonable to assume that an error of this sort was made, either by the author of the text or by one of his proximate sources. Mistakes of this kind can be discerned in the chronographic testimony for Xenophanes, Theaetetus, Eudoxus, and Anaximander.[81]

Another major source of confusion in the interpretation of the Olympiad dating record is that ancient chronographers made use of what I will call *period datings*. In sources both early and late we often find

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[80] Rohde 1878, 219.

[81] See pages 103, 212, 221, 239.

synchronisms that connect persons to broad, well known periods of time, such as the reign of a king or the era of a major war:

> "One finds Pythagoras *in the time of Polycrates' tyranny*, around the 62nd Olympiad..." (Clement, *Stromata* 1.65.2)

> "[Heraclitus] was alive in the 69th Olympiad, *under the reign of Darius son of Hystaspes*." (the *Suda*, 'Herakleitos' (*eta*-472))

Note that the italicized verbal entries define a broad span of time (the tyranny of Polycrates, Darius' reign), while the Olympiads pick out a single quadrennium within it. One might be tempted to prefer the Olympiad dating insofar as its precision makes it appear better informed. But the apparent precision is spurious, *since the period datings will usually have come first in terms of historical development*, deriving from Classical or early Hellenistic narrative sources. To place such periods in a historical timeline, later chronographers would identify the Olympiad that contained the period's first year or middle year, then use these dates as a kind of synecdoche for the whole span of time. Thus, in the texts quoted above, the 62nd Olympiad (532 to 528 BCE) contains the first year of Polycrates' reign (530), while the 69th Olympiad (504 to 500) embraces the middle year (504) of Darius' long reign (522 to 496).

Once these Olympiad datings were detached from the verbal descriptions of the relevant periods, as often happened in chronicles and other abridgements, the potential for further misunderstandings arose. In Diogenes Laertius' biography of Heraclitus, for instance, his acme is placed in the 69th Olympiad, 504 to 500; the dating statement no longer mentions the synchronism with Darius. This entry may create the impression that scholars had identified a dated event in Heraclitus' life which could be set in that Olympic quadrennium, but this is just an

illusion; the only information ancient scholars had to work with was a synchronism between Heraclitus' mature years and the reign of Darius. Other figures who were assigned arbitrarily precise dates in this way include Xenophanes, Pythagoras, and Zeno, as we shall see later.[82]

One species of period dating deserves special attention. The corpus of chronological indications includes several multi-person synchronisms involving three or more figures, like this from Jerome's version of Eusebius (*Chronicle* 114[d]):

> "Olympiad 86.1: Democritus of Abdera, Empedocles, Hippocrates the physician, Gorgias, Hippias, Prodicus, Zeno, and Parmenides the philosophers are considered prominent."

What could it mean to say that all eight of these men were prominent in the year 436 BCE? It is certainly not the case that all were exactly 40 years old during that year or even during the quadrennium that it defines – no modern scholar would make such a claim, and surely no ancient scholar would either. Their actual floruits fell closer to the following dates:

Parmenides	ca. 475
Empedocles, Zeno	ca. 455
Gorgias	ca. 440
Democritus, Hippocrates	ca. 420

What Eusebius' entry was originally intended to convey, I think, was a period dating *for multiple persons*. In the example at hand, the period in question was originally specified with a loose verbal formula of some sort

[82] See pages 105, 135, 160/1.

– perhaps, "just before the Peloponnesian War," which would explain the specific choice of the first year of the last quadrennium before the outbreak of the Peloponnesiaan War in 431. On this interpretation the presence of a figure within a *multi-person synchronism* should be understood to convey, not an exact dating for the figure, but a very broad one; that is, the only information the chronographer possessed was an indication that the figure was alive during the period in question. A war similarly defines a multi-person synchronism in this passage from an anonymous *Life of Ptolemy* (95.12–16):

> "[Oenopides] was noticed at the end of the Peloponnesian War, at the same time as the orator Gorgias was alive, and Zeno of Elea, and, some say, the historian Herodotus of Halicarnassus."

Since Zeno was in his prime in the 450's, while Gorgias, Herodotus, and Oenopides were in their prime around 440's, the war at issue here must be the so-called First Peloponnesian War, which concluded in 446/5 with the Thirty Years' Peace between Athens and Sparta. What this entry tells us then is that Oenopides and the others named were active adults – probably, but not necessarily in their forties – during the span of years 450 to 445.

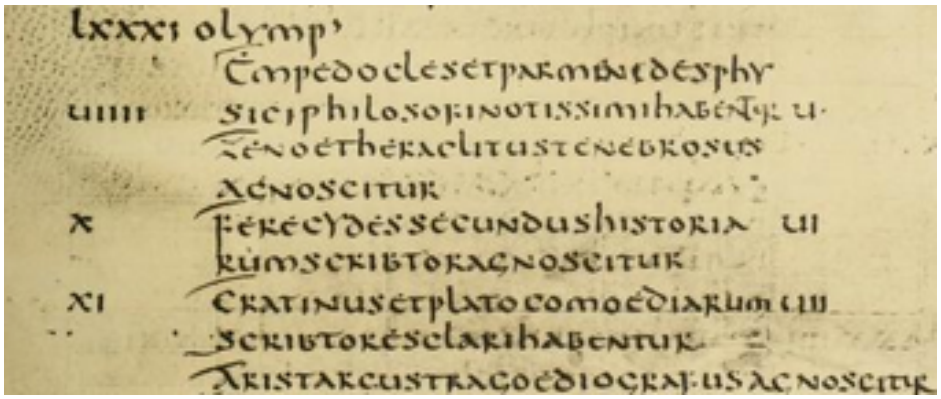
The text of Eusebius/Jerome contains a number of entries of this sort. Consider the notice which is linked to Olympiad 70.1 (*Chronicle* 107^{e}):

> "The historian Hellanicus, the philosopher Democritus, Heraclitus nicknamed the Obscure, and Anaxagoras the natural philosopher are considered famous."

While attached to the specific year 500/1, the original indication was surely intended to apply to the 70th Olympiad as a whole (500 to 496).

During this quadrennium Heraclitus was a middle-aged man, and thus plausibly described as 'famous.' However, Hellanicus and Anaxagoras were at best still infants and Democritus was not yet alive, even if one follows a mistaken chronology that placed his birth in the year 493. What originally lay behind this dating, I would argue, was a statement to the effect that all four were alive during τὰ Μηδικά or τὰ Περσικά, considered as the period of history that began with the Ionian revolt in 499 and ended with the battle of the Eurymedon River, placed by Eusebius in 461 (Jerome, *Chronicle* 111[b]); the dating given here represents its start date. On this interpretation what the entry tells us is that all four figures were alive sometime during the period 499 to 461, which is certainly true of Hellanicus (born ca. 480), Heraclitus, and Anaxagoras, and also holds for Democritus, according to a high dating of his life retailed by some ancient scholars. The important thing to notice about such entries is that, while they give us rough sense of where these thinkers stood in the historical timeline, they are of little use in identifying their precise years of birth, prime, or death.

Multi-person synchronisms of this sort could give rise to another kind of confusion when recorded in a text like Eusebius' which had formatting constraints. Writing down such a synchronism involved fitting a fairly long text into a cramped space. While this was done successfully in the case of Olympiad 86.1, in at least one case a scribe moved part of the entry into adjacent year rows, thus creating the appearance, but not the reality, of one-year distinctions. Consider the following pair of entries from Jerome's version of Eusebius (*Chronicle* 111[h]):



"81st Olympiad [456 to 452 BCE]
[1st year] Empedocles and Parmenides the natural philosophers are noticed.
[2nd year] Zeno and Heraclitus the obscure are noticed."

Empedocles' floruit falls in 456, which is the objectively 'correct' year for it, as we shall see, together with Parmenides'. But there is no obvious reason why the entry for Zeno's floruit should be one year later; the evidence of Plato's dialogue would have them visiting Athens together, when Socrates "was very young." A much earlier version of this entry preserved in a Roman chronicle may give us a sense of what the original looked like: "[---] years since Socrates the philosopher and Heraclitus of Ephesus and Anaxagoras and Parmenides and Zeno [were alive]" (*IG* XIV.1297, 2.30-32). The mention of Socrates here all but guarantees that Plato's dialogue lay behind this synchronism. Thus the distinction which Jerome's text draws between the years 456 and 455 is spurious, the product of an artificial splitting of a report that originally dated all four of these figures to the 81st Olympiad.[83]

One idiosyncratic dating error is worth describing here because it left its mark in many places. It was noted above that confusion between Xenophanes' floruit and his 26th year generated a false year of birth for the sage 15 years earlier than it ought to be. As it happens, several entries

[83] Heraclitus has joined them due to the belief that his friend Hermodorus was the same person as the man who helped the Romans with their law code ca. 450; see page 149.

in late sources such as Eusebius and the *Suda* place events from this time period (580 to 540 BCE) exactly 15 years earlier than we might expect them to be, based on a reconstruction of Apollodorus' datings. I would conjecture that an authority who was using Xenophanes' key date as a reference point was responsible for introducing this systematic 15-year error, which I will refer to henceforth as the 'Xenophanes gap'. The processs by which these erroneous dates were generated might have worked something like this. Let's suppose that an early, post-Apollodoran scholar, such as Sosicrates, had derived precise year equivalents for the following events:[84]

Xenophanes born	566 BCE
Anaximander born	562
Pythagoras born	562
Anaximenes noticed	546
Pythagoras noticed	541
Xenophanes noticed	541

Sometime later, another chronographer reading this document observed the 26-year interval between Xenophanes' birth and his year of notice and concluded that something was wrong: assuming that 'notice' should designate Xenophanes' acme year, he concluded that the interval ought to be 40 years, not 26. To correct for this, he moved Xenophanes' year of birth back 15 years to 580, while keeping the date for his recognition fixed. He then adjusted the entries that followed so as to preserve their distance from Xenophanes' birth year, which meant moving them back 15 years as well:

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[84] Save for Anaximenes' notice, these probably represent Apollodorus' own date determinations; the evidence for this will be discussed at length in the two chapters that follow.

Xenophanes born	15 years before 566 =	580 BCE
Anaximander born	15 years before 562 =	576
Pythagoras born	15 years before 562 =	576
Anaximenes noticed	15 years before 546 =	560
Pythagoras noticed	15 years before 541 =	555
Xenophanes noticed	541 (unchanged)	541

The dates in the far right-hand column filtered into the late chronographical tradition from this source, turning up mainly in Eusebius/Jerome and the *Suda*. In some cases they are directly attested, while in others their influence can be discerned from calculations that were made using them as starting points. The evidence is indirect, but the fact that this 'gap' makes its presence felt in ten different passages – five dealing with Pythagoras, two dealing with Xenophanes, and one each for Anaximander, Anaximenes, and Pherecydes – tells strongly in favor of its existence.[85]

One final note. Readers who might be disconcerted by the claim that 580 BCE was 15 years prior to 566 (why not 566 + 15 = 581?) should bear in mind that Greek writers almost always made use of inclusive counting when determining ages and intervals.[86] In this study I have chosen to use the Greek form of reckoning across the board rather than interrupt my exposition with repeated reminders about the nature of inclusive counting. In this style of reckoning a person is described as being 1-year old at their moment of birth, and reaches his or her '40th

[85] For discussion of specific dates, see under relevant sections in chapter two (pages 103, 142, 239, 247 (note 302)).

[86] This mode of reckoning arises naturally in cultures where simple arithmetic is done by counting on one's fingers or manipulating other physical tokens like pebbles.

year' at what we would call age 39. Festivals held every two years are described as 'third-yearly' (τριετηρίς) (cf. CLEOSTRATUS 3), and the interval from, say, 432 to 404 would be counted as 29 years, not 28, because the starting year would be included in the tally along with the last. Two more brief examples will show how inclusive reckoning affects year-and-interval calculations: when Diodorus Siculus say that Sybaris was destroyed 58 years before the archonship of Lysicrates in 453, the date of its destruction (which Pythagoras reportedly foresaw) should be understood to be 510, not 511 (*Library of History* 11.90.3); and when Diogenes Laertius reports that Anaxagoras was 20 years old in 480, this implies that he was born in 499, not 500 (*Lives* 2.7). As a rule, then, when calculating dates with the help of intervals, we moderns should *shorten the interval by one year* before adding or subtracting it in the usual way; and when determining the intervals between dates, we should subtract the two dates, then *add one year*. Except when reporting other scholars' exclusive calculations, I will make consistent use of inclusive reckoning in this book.

2

CASE STUDIES, I: THALES TO EUDOXUS

In the case studies that follow I give for each natural philosopher a list of all the texts which provide accurate, precise, or otherwise actionable chronological data. They are presented in temporal order to show how the format of these data evolved over time; over and over again rough synchronisms and orderings give way to very precise dates of birth and death. Another reason for this choice is to give the earliest evidence the prominence and weight it deserves; even when it is vague, it is precisely the kind of material Apollodorus would have had to work with when he set out to establish datings.

The rationale for the apportionment of figures to different chapters is as follows. The present chapter deals with individuals for whom Olympiad datings were preserved, and whose lives have some presence in the chronographical vulgate, thanks to the attention Apollodorus bestowed on them. The next chapter focuses on two thinkers, Anaximander and Anaximenes, for whom I propose substantially revised dates; I have segregated them in this fashion, despite the fact that Apollodorus gave dates for them, because the arguments for their redating presuppose some of the results derived in this chapter. The

chapter that comes after treats a roster of important thinkers for whom we have no Olympiad dates, but whose chronology can be inferred thanks to their relationship to persons discussed earlier.

THALES OF MILETUS

1. Herodotus 5th century BCE

A. *Histories* 1.74.1/2

"Later on, since Alyattes did not hand the Scythians over to Cyaxares as he had demanded, a war broke out between the Lydians and Medes which lasted five years, during which time the Medes frequently beat the Lydians and the Lydians frequently beat the Medes and they even performed a sort of night battle: the war was extending into its sixth year, with both sides faring equally well, when it happened that at the beginning of one battle, just as the fighting was starting, day suddenly became night. Thales of Miletus proclaimed in advance to the Ionians that this change of day would happen, putting forward as a limit this year in which the transformation actually took place."

Eclipse: May 28, 585 BCE

B. 1.75.3

"Once Croesus reached the river Halys, he brought his army across using bridges that then existed – or so I would claim, though a long Greek story has it that Thales of Miletus brought them over. The quandary facing Croesus was how to get his army across the river, and in the story the bridges did not exist at this time. Thales, who was present in the camp, reportedly made it so that the river, which ran on the army's left side, also ran on its right."

ca. 548/7 BCE

C. 1.170.3

"Before Ionia met its ruin, Thales, a man from Miletus who was Phoenician from way back, had very helpful idea. He told the Ionians to establish a single council at Teos, since Teos is in the middle of Ionia, and keep all the other city-states inhabited but treat them exactly as if they were outlying villages."

The "ruin" of Ionia: ca. 545 BCE

2. Demetrius of Phalerum, *Archon List* 4th century
via Diogenes Laertius, *Lives* 1.22

"He was the first to receive the title 'Sage'. This was during Damasias' archonship at Athens, at which time all seven of the Sages were so named, as Demetrius of Phalerum says in his *Archon List*."

Damasias' archonship: 582/1 BCE

3. Apollodorus of Athens, Sosicrates of Rhodes 2nd century
via Diogenes Laertius, *Lives* 1.37

"According to Apollodorus in his *Chronicle*, he was born during the first year of the 35th Olympiad.[87] He died at age 78, or, as Sosicrates says, at age 90, since he died in the 58th Olympiad, having lived during the time of Croesus, for whom he undertook to cross the Halys without using bridges by diverting its current."

Olympiad 35.1: 640/39 BCE
58th Olympiad: 548–544

4. Cicero, *Divination* 1.112 1st century

"Thales is said to have been first to predict a solar eclipse, the one which took place when Astyages was king."

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[87] "35th Olympiad": I follow the transmitted reading rather than Diels' emended text; see discussion at page 81.

5. Pliny the Elder, *Natural History* 2.53 1st century CE
"Among the Greeks the first investigator was Thales of Miletus; in the fourth year of the 48th Olympiad he predicted a solar eclipse which took place when Alyattes was king, 170 years after the foundation of Rome."
Olympiad 48.4: 585/4 BCE
A.U.C. 170: 584 BCE

6. Tatian the Syrian, *Oration to the Greeks* 41 2nd century
"The oldest of [the Sages], Thales, was alive around the 50th Olympiad."

7. Phlegon of Tralles 2nd century
via the *Suda*, s.v. 'Thales' (*theta*-17)
"According to Phlegon he was already noticed in the 7th Olympiad."
7th Olympiad: 752 to 748 BCE

8. Clement of Alexandria, *Stromata* 1.65.1 3rd century
"Thales had predicted the solar eclipse... The period of time was around the 50th Olympiad."
Olympiad 50: 580–576 BCE

9. pseudo-Lucian, *Long Lives* 18 3rd century
"Solon and Thales and Pittacus... each lived to be 100 years old."

10. Porphyry, *The History of Philosophy* 3rd century
via al-Sijistani, *The Vessel of Wisdom* 187
"Porphyry mentions that Thales appeared in the 123rd year reckoned from the reign of Buhtnasar."[88]
Buhtnasar: Nabonassar, king of Babylon from 747 to 734 BCE

[88] Translation from Wöhrle 2014, 421/2.

11. Eusebius, *Chronicle* 4th century

A. via Jerome, *Chronicle* 88b[k]

"Olympiad 8.2: Thales of Miletus the natural philosopher is noticed."

Olympiad 8.2: 747/6 BCE

B. via Jerome, *Chronicle* 96a[b]

"Olympiad 35.1: Thales of Miletus, son of Examyis, the first natural philosopher, is noticed; they say he lived to the 58th Olympiad."

Olympiad 35.1: 640/39 BCE

58th Olympiad: 548 to 544

C. via Jerome, *Chronicle* 100b[f]

"Olympiad 48.3: an eclipse of the sun; Thales had forecast when it would happen."

Olympiad 48.3: 586/5 BCE

D. via Jerome, *Chronicle* 103b[h]

"Olympiad 58.1: Thales dies."

Olympiad 58.1: 548/7 [the Eusebian year for the capture of Sardis]

E. via Cyril of Alexandria, *Against Julian* 520d

"In the 35th Olympiad the first natural philosopher Thales of Miletus is said to have been born; his life, they say, extended to the 58th Olympiad."

35th Olympiad: 640–636 BCE

58th Olympiad: 548–544

F. via *Chronicon Paschale* 214.21

"Olympiad 10.3: In this year the philosopher Thales of Miletus died on Tenedos."

Olympiad 10.3: 738/7 BCE[89]

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[89] The Olympiad datings in the *Chronicon* exhibit unpredictable divergences from the Eusebian standard chronology. This entry falls 11 years after the foundation of

G. via *Chronicon Paschale* 268.10
"Olympiad 55.4: The first natural philosopher, Thales of Miletus the son of Examyas, died at age 91."
Olympiad 55.4: 557/6[90]

12. *Anecdota Graeca*, 2.263.30 Cramer Byzantine
"During this time Thales of Miletus died at Tenedos."
reign of Ahaz (758 to 742 BCE, according to Eusebius)

13. Lydus, *Portents* 18.5 6th century
"This [sc. a total eclipse] was reportedly predicted by Thales of Miletus during the 49th Olympiad, in the 170th year after the foundation of Rome."
49th Olympiad: 584–580 BCE
A.U.C. 170: 584

14. The *Suda*, s.v. 'Thales' (*theta*-17) 10th century
"He was born before Croesus, in the 35th Olympiad."
35th Olympiad: 640-636 BCE

15. al-Sijistani, *The Vessel of Wisdom* 176–187 10th century
"And it is said that the first time that philosophy appeared was in the reign of Buhtnasar, and the first to originate and make a start in astrology was Thales of Miletus, whom we have mentioned, and that [one of] the first and most important things that his contemporaries said about him is the following. The time of a lunar eclipse drew near and he had

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Rome; in Eusebius/Jerome (11.A), the interval from Rome's foundation to Thales' notice is 7 years.

[90] This entry falls one year after the capture of Croesus by Cyrus, an event Eusebius places in 548/7 BCE.

calculated it and warned the people of it before it occurred. And when the eclipse occurred they acknowledged within themselves what he had warned them of, and a group of people came to study under him… Thales was 382 years later than Homer. From the time of Thales until the beginning of the reign of Buhtnasar was 28 years and some days. The Greek people arose later than Moses (may peace be upon him), and poetry began among them about 80 years before philosophy, and the first philosopher among them was 951 years after the death of Moses (may peace be upon him). Cyril reports this in his book where he refuted Julian's refutation of the Gospel."[91]

While there is precious little reliable evidence for Thales' dates, ancient scholars made many precise statements about his chronology, several of which go well beyond the data found in our oldest sources. A complete treatment of the evidence thus demands that we try to account for these variants, in addition to reconstructing an objective dating. Among the main challenges are determining how Apollodorus derived precise years of birth and death for Thales, given the paucity of solid data; explaining how some ancient scholars managed to correctly identify the year in which Thales' eclipse took place; and accounting for a late, 'wild' dating of Thales that placed his life in the eighth-century BCE. After giving estimated dates for Thales' life, I offer explanations for these three phenomena.

Almost everything about Thales' chronology that has some claim to validity derives from Herodotus, who mentions the philosopher by name three times. In one passage he has him advising his fellow Ionians

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[91] The translation is that of Wöhrle 2014, 421. 'Buhtnasar' is Nabonassar of Babylon, who ruled 747 to 734 BCE. Note that, by the reckoning of this passage, the "time" of Thales – that is, of his birth, presumably – is 776 BCE, i.e. the year of the first Olympiad.

prior to Harpagus' conquest of their land, which took place ca. 545 BCE (1.C). In another he describes an eclipse of the sun Thales supposedly predicted (1.A). This event can be dated as follows. The eclipse occurred at the end of a six-year long war fought by the Medes under king Cyaxares against the Lydians under Alyattes. The period of overlap between their respective reigns runs from the accession of Alyattes in 606 to the last year of Cyaxares' rule, which, according to Herodotus' internal chronology, fell in 594.[92] Since total eclipses are relatively rare phenomena, and modern astronomers can calculate their dates with great accuracy, it would seem like a relatively straightforward matter to identify which one is at issue. Hence the first major problem of Thales' chronology: during the period 606 to 594 no solar eclipses were visible in the skies over Ionia and Asia Minor. However, two dramatic solar eclipses took place in this region just a few years later, the first an annular eclipse that reached maximum phase at sunset on July 29 of 588, the other a total eclipse that would have stunned onlookers late in the day on May 28, 585. By the time the next major solar eclipse occurred in this part of the world, in 557, Cyaxares and Alyattes were both dead. Most scholars now accept that the eclipse referred to in the story is the event of 585.[93] The apparent conflict with Herodotus' internal chronology for Cyaxares is not as serious as it may seem, since the historian's other reports of solar eclipses are also synchronized with major events in ways that lead to small implicit misdatings.[94] This is the fault, no doubt, of an oral tradition which correlated eclipses with

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[92] For Herodotus' internal chronology of the Lydian kings see Markianos 1974, 10n41.

[93] The consensus on the eclipse of 585 BCE emerged around the beginning of the twentieth-century; for a history of efforts to identify the event, see Blanche 1968.

[94] Mosshammer 1981 discusses Herodotus' misdating of two later eclipses. See Henige 1976 on the problems of identifying eclipses mentioned in oral traditions.

dramatic events for the sake of memory and storytelling. If the eclipse Thales spoke about took place in 585, then we may infer that he was old enough to have a credible public voice in the 580's.

A third anecdote related by Herodotus has Thales advising the Lydian king Croesus at the time of his attack on the Medes in 548/7 BCE (1.B). It is worth noting that Herodotus is skeptical of this story, and another late report has Thales urging the Milesians *not* to form an alliance with Croesus (Diogenes Laertius, *Lives* 1.25). Whichever version is more accurate, we can infer from these reports that Thales was still alive around 547.

Another event with the potential to shed light on Thales' era is his supposed designation as one of the Seven Sages; Demetrius of Phalerum associated this event with the foundation of the Pythian Games at Delphi in 582 BCE (2).[95] The other Sages were active during the first half of the sixth-century, and it is credible that Thales had made a name for himself by this time in connection with the eclipse. On the other hand, it is hard to believe that the contributions of public intellectuals were being recognized at such an early date; moreover, during Demetrius' day tales told about the Sages were accreting fictitious details.[96] In fact Demetrius' claim does not affect the underlying chronology much, whether accurate or not. The most we can say for sure about Thales' lifespan is that his mature years included the period 585 to 545.

There is no evidence that Hellenistic chronographers possessed any more information about Thales' life than we do; like us, they would have had to draw inferences from the anecdotes preserved by Herodotus and Demetrius. To see how such a chain of inference would have

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[95] The chronology of the sages and the Pythian games are closely related to each other; for a good overview of this complex topic, see Miller 1978 along with Mosshammer 1976a.

[96] On this point see especially Fehling 1985.

worked, let us start with the dating ascribed to Apollodorus (3). That scholar placed Thales' death in the same Olympiad (the 58th) as Croesus' crossing of the Halys, obviously synchronizing his demise with the last datable event in Thales' life. As for Thales' birth, Apollodorus dated it to Olympiad 35.1, according to Diogenes Laertius, or 640/39 BCE. Diels proposed emending the Olympiad in Diogenes' text from '35th' to '39th' so that his birth would fall in 624/3; with this change Thales' prime year would correspond to the year of his eclipse.[97] However the only other sources to identify Thales' year of birth, Eusebius and the *Suda* (11.B, E, 14), also place it in the 35th Olympiad, which shows that the text of Diogenes is itself unexceptionable. Moreover, a lifespan of 90+ years was already ascribed to Thales by Sosicrates, Apollodorus' earliest epitomator (3; cf. 11.G). If Thales lived into his nineties and died in the early 540's, then he must have been born around 640. The transmitted Apollodoran date for Thales' birth thus has solid support and should not be emended. The question that needs to be answered is how Apollodorus determined it.

It is in fact not very hard to derive a birth date ca. 640 BCE from Herodotus' text. The battle of the eclipse is the last event in Cyaxares' life that Herodotus mentions; it would be natural (especially in view of the eclipse's ominous nature) for an ancient chronographer to infer that the king passed away then. Since Herodotus' internal chronology tells us that Cyaxares died in 594, the eclipse could be dated to that year. Herodotus further notes that the eclipse took place in the sixth and last year of the war, and that Thales specified the sixth year as the one in which the eclipse would take place; he thus forecast the natural event that would mark the end of the war. Now in the *Iliad* we are told that the mythical seer Calchas predicted at the outset of the Trojan War that

[97] Diels 1876, 16, Jacoby 1902, 178.

the conflict would last for ten years (2.326); in the same way it would be natural for Apollodorus to infer that Thales made his prediction about the end of the conflict just as the war began. From this line of thought it would follow that he made his prediction in 599. If Thales was 40 years old at the time, then he would have been born in 638, the middle of the 35th Olympiad, the Apollodoran date.[98] Now if we count the years from 638 to the quadrennium of Thales' death according to Apollodorus and Sosicrates, 548 to 544, we find that when he died he was somewhere between 91 and 95 years old. The former lifespan precisely matches the age given by the Eusebian-influenced *Chronicon Paschale* (11.G), 91 years, and is roughly consistent with Lucian's claim that he lived to 100 (9). Sosicrates' figure, 90 years, looks like a rounded version of this number. I would maintain that Apollodorus' deduction of Thales' year of birth proceeded along such lines as these, that Sosicrates followed him, and that this dating is reflected in the texts of Diogenes, Eusebius, and the *Suda*.

Nevertheless, this is not the only lifespan ascribed to Thales: according to Diogenes, some authorities allotted him a life of 78 years (3). Diels, followed by Jacoby and Mosshammer, thought that the authority in question was Apollodorus. The crux of their argument is that, if one counts back 78 years from 546 BCE, the year of Sardis' destruction, the result is a birth year of 624 and a floruit year of 585; the match between the latter and the date of the solar eclipse suggests that the authority behind the 78-year lifespan knew when the eclipse occurred; and that author could only have been Apollodorus.[99] This hypothesis is elegant enough to make Diels' proposed emendation of Diogenes' text (which

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[98] That his date is reported as Olympiad 35.1 may be due to a series of simplifications: Olympiad 35.3 became the 35th Olympiad, which was subsequently identified by its first year, 35.1.

[99] Diels 1876, 17–19, Jacoby 1902, 179/80, Mosshammer 1979, 257.

puts Thales' birth year in the 39th Olympiad) seem warranted. Yet as was noted above, Eusebius and the *Suda* concur with Diogenes regarding Thales' birth date, which implies that the putative corruption must go back fairly far in the tradition. Moreover, if Apollodorus knew the actual date of the eclipse from an astronomically valid record or computation, it would be strange for Sosicrates to revert to a cruder dating that apparently derived from clues in Herodotus' text.[100] The most conservative interpretation of the evidence would be to accept that Apollodorus and Sosicrates both dated Thales' birth to ca. 638, and to credit some other source with the mysterious 78-year lifespan. I will now argue that Diels derived Diogenes' figure of 78 years more or less correctly, but that it originated *after* Apollodorus and Sosicrates completed their work, when new information was brought to bear on the problem of Thales' chronology in the form of an astronomically valid dating for the eclipse.

It is a remarkable fact that several ancient sources place Thales' eclipse in or near the very year reconstructed through modern astronomical methods. Pliny and John Lydus both put it in 170 AUC or 584 (5, 13), and Eusebius/Jerome specify the year as our 586/5 (11.C); since Eusebius' years begin in October, the last dating encompasses the day

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[100] Diels 1876, 19, followed by Jacoby 1902, 177/8, and Mosshammer 1979, 257, argued that the tradition about Thales' birth year must have been corrupted *before* it reached Sosicrates in order to explain the 90-year lifespan he assigned the sage. This is highly improbable. Apollodorus did not date using Olympiads; hence, if Sosicrates was misled by a text containing an erroneous Olympiad, it is necessary to postulate an intermediate source in which the number was corrupted. Apollodorus and Sosicrates were only a few decades apart, so little room exists for an intermediary. Sosicrates was surely working from Apollodorus' original poem, with its archon dates, not some otherwise unknown prose source which converted these to Olympiads.

May 28, 585.[101] Cicero's dating of the eclipse to the reign of Astyages (4) also belongs to this family of reports, since the identification of the king of the Medes contradicts Herodotus' insistence that the king was Cyaxares. The specified dates are sufficiently distinct from Demetrius' dating for Thales' public recognition (582/1) to suggest a different origin.[102] Since Apollodorus and Sosicrates have already been ruled out as sources, serious consideration should be given to the possibility that the dating for the eclipse ca. 585 came from some other authority.

We have several clues as to the identity of this individual. Cicero's knowledge of the dating establishes a *terminus ante quem* of about 50 BCE. Also, many of these reports spring from the Roman scholarly tradition: this is patently the case for Cicero and Pliny, and clear as well for Lydus, who, though writing in Greek, was familiar with the works of Varro, Pliny, and others.[103] We should be looking then for a scholar with connections to first-century Roman intellectuals. In addition, the fact that Cicero made Astyages the king of the Medes during the eclipse rather than Cyaxares tells us something about the character of the information on which the dating was based. If one treats it as a given that the eclipse took place in 585, Herodotus' internal chronology would lead one to conclude that the king of the Medes at the time was in fact Astyages. This means that whoever dated the eclipse had access to information that allowed them to *correct* Herodotus' work, i.e. to reject

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[101] For the date of Eusebius' new year, see Burgess 2002, 22. Mosshammer 1979, 263–273, was the first to recognize that this coincidence demands an explanation; unfortunately his explanation (270/1) rests on several arbitrary assumptions about Apollodorus' reading of a lost poem of Alcaeus.

[102] Efforts to derive the date of the eclipse from the dating of the Sages have not been very successful; see Mosshammer 1976a, 165–170. Clement (8) and Tatian (6) linked Thales to the 50th Olympiad; the wording of Tatian's report demonstrates that this date was derived from a synchronism with the seven Sages.

[103] See Lydus, *Portents*, 15.4, 35.6, etc.

his implied dating of the eclipse, while accepting his chronology for the warring kings. Since Herodotus' text was usually considered the last word on chronological matters for the archaic period, our source must have been considered the additional dating information he had access to highly credible.[104] As a practical matter there are really only two kinds of source that could have trumped Herodotus: an authoritative historical chronicle going back to Thales' lifetime, or a record, either calculated or observed, of the solar eclipses that took place then. And this means that our mystery source must have had access either to a Near Eastern historical chronicle, or to astronomical documents ultimately based on the work of Babylonian astronomers.

The number of scholars from the first-century BCE who had access to such records and links to Roman intellectuals is not very large. Cornelius Nepos, who translated Apollodorus' work into a Roman framework and was the source for many of the Olympiad/A.U.C. datings that we find in Pliny and Solinus, does not appear to have had any interest in astronomy – the same holds true for his fellow Roman chronicler, Titus Pomponius Atticus. A much more promising candidate is Marcus Terentius Varro. As Anthony Grafton and Noel Swerdlow have shown, Varro was one of the first persons in the European tradition to establish the chronology of historical events by tying them to datable eclipses.[105] Censorinus mentions that Varro sought to shed light on historical chronology "by comparing the chronologies of different city-states in some cases, in others by calculating backwards *various eclipses and eclipse intervals*; he thus uncovered the truth and shone a light which allows one to establish, not just fixed numbers of years, but even

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[104] Huxley 1965 and Mosshammer 1979, 270–272, suspect that a lost poem of Alcaeus played some role in the dating, but while this hypothesis solves some secondary puzzles, it does not explain the switch from Cyaxares to Astyages.
[105] See Grafton and Swerdlow 1985 – essential reading on this topic.

the numbers of days" (*The Day of Birth* 21.5). In what is surely the most famous instance of this practice, Varro had the astrologer Lucius Tarutius establish precise dates for the conception and birth of Romulus, and for the foundation of Rome; the first of these events was synchronized with a putative solar eclipses in June 24, 772. It is entirely within the realm of possibility that Varro sought a historically accurate date for Thales' eclipse. The hypothesis of Varro' involvement has the further advantage of explaining why so many Roman sources report this particular eclipse date.

However, while Varro may well have played an important role in promulgating a dating of Thales' eclipse, the idea that he was sole authority runs into difficulties. As we saw above, a 78-year lifespan was ascribed to Thales by Diogenes Laertius, and Diels was surely right to think that Diogenes' source determined Thales' acme year by synchronizing it with the eclipse of 585 BCE. Porphyry in his *History of Philosophy* put Thales' birth in 625, a dating which would again imply an acme in 586/5 (10). Diogenes and Porphyry must have been drawing on some common source, and it is highly unlikely, given the Hellenic chauvinism of the two writers, that the source was Varro or a Greek authority relying on Varro. We should be thinking then of a Greek chronographer from the first-century, someone who influenced Roman writers like Varro, was known to Diogenes Laertius, Eusebius, and Porphyry, and was comfortable with astronomical datings. One possibility is Castor of Rhodes, whose six-book universal chronicle encompassed the history of various Near Eastern civilizations. Varro drew on Castor for his knowledge of a portent involving Venus that dated to around 2,000 BCE (Augustine, *City of God*, 21.8), which speaks to the latter's interest in astronomy. Another possibility is Alexander Polyhistor, a freedman of Sulla who reconstructed the timelines of Assyria and Babylon and used the former to propose an

idiosyncratic dating for Pythagoras; Alexander's work on *Successions* is frequently cited by Diogenes. In the end we do not have enough information to credit any one individual with the dating of Thales' eclipse. Nevertheless we can confidently place the calculation in a Roman ambit, shortly before the middle of the first-century BCE, and credit Varro with a crucial role in its transmission.

How exactly Varro, Castor, or their astronomers determined the date of Thales' eclipse must remain a mystery. But we can be sure of one thing about the method in question: it must have made use, either directly or indirectly, of Babylonian astronomical lore. At the period in question only Babylonian astronomers had the observational records and procedures that would allow one to establish when a previous eclipse had taken place or when one might have taken place.[106] Confirmation for this claim comes from the peculiar way in which Porphyry identifies the year of Thales' birth (10). Rather than name an Olympiad, as was the usual practice, he placed it in the 123rd year after beginning of the reign of "Buhtnasar," as the author of *The Vessel of Wisdom* refers to him. Why date Thales' birth by the epoch of an obscure eastern monarch? There is really only one possible answer to this question. "Buhtnasar" is the Arabic name for the ruler better known to us as Nabonassar, who was the king of Babylon from 747 to 734.[107] The reign of Nabonassar was not of any particular interest from a historical point of view, but it was incredibly important for later astronomers as the year in which Babylonian omen-scholars began making continuous records of celestial phenomena.[108] Ptolemy implies in his *Almagest* (3.7) that he had access to records of Babylonian eclipse observations going back to Nabonassar's reign, and cites ten such reports in his work. Ptolemy

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[106] See e.g. Montelle 2011, 48–98.
[107] Wöhrle 2014, 421n3.
[108] Grafton and Swerdlow 1985.

always expresses the years when they occurred in terms of Era Nabonassar; so, for instance, a lunar eclipse that we would date to April 21st, 621, is described by Ptolemy as falling on the 27th day of the Egyptian month Athyr in the fifth year of Nabopolassar, which is the 127th year from Nabonassar (*Almagest* 5.14). Nabonassar's reign also served as the first entry in the so-called Royal Canon of Ptolemy, a list of regnal years extending from the kings of Babylon down to the time of Cleopatra.[109] This list was specially designed to meet the needs of practicing astronomers because it made consistent use of Egyptian 365-day years; with it, one could identify the dates of celestial events with single-day accuracy. Some version of the Royal Canon was almost certainly known to Varro, since Censorinus refers to it in a manner that shows he was copying from his learned predecessor. Censorinus' claim that Varro could date events with single-day precision also points to knowledge of the Canon or some version of it.[110]

Now Porphyry dates Thales' birth to the year of Nabonassar 123, which corresponds more or less to our 625 BCE. The year Nabonassar 163, as Greek astronomers would have described it, witnessed a dramatic solar eclipse that was visible as far east as Babylon, where the sun would have been approaching totality as it set.[111] This was the eclipse that Thales supposedly predicted. Thus it seems very likely that Porphyry or his source dated Thales' birth using Era Nabonassar *because that was the format in which professional astronomers recorded eclipse dates*. The

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[109] Depuydt 1995.

[110] See Censorinus, *The Day of Birth* 21.9, with Grafton and Swerdlow 1985, 455, together with the remarks at 21.5 which are quoted above.

[111] According to NASA's Solar Eclipse Explorer, at Nineveh totality occurred while the sun was still 1 degree above the horizon; at Babylon it would have been in deep partial phase, with more than 90 percent of its disk obscured, as it set, making it obviously visible. https://eclipse.gsfc.nasa.gov/JSEX/JSEX-index.html

dating of Thales' birth in this format offers indirect but compelling evidence that his eclipse was dated by an astronomer who was consulting a catalogue of observed events deriving from Babylonian sources.

A final piece for this puzzle consists of a report that Phlegon of Tralles, a Greek freedman of the emperor Hadrian, put Thales' acme at the incredibly early date of 747/6 BCE (7; cf. 11.F, 12). The key to understanding the basis for this wild-seeming claim is to recognize that it precisely synchronizes Thales with the very *first* year of Nabonassar, and thus the epoch year of the Royal Canon. An anecdote preserved in the *Vessel of Wisdom* (15) makes the remarkable claim that Thales was actually Nabonassar's contemporary and won a name for himself by predicting, not a solar eclipse, but an eclipse of the *moon* – a peculiar, non-Herodotean detail that can best be explained by the fact that in the Canon' reckoning system, the first day of Nabonassar's reign happens to be the day of a lunar eclipse, that of February 26, 747. Although Phlegon is not named as the source for this story, it almost certainly originated with him, since it presupposes the same idiosyncratic dating and provides it with a context that makes it intelligible – though of course, wholly incredible.

If this hypothesis is correct, then Phlegon maintained that Thales was serving as an astrologer at the court of a Babylonian king at the time when the first eclipse records were being made. This notion may seem fantastic to us, but it is not actually contradicted by the text of Herodotus. Of the three anecdotes which he relates, the first places Thales' active life before 545 BCE, the second he dismisses as a tall tale, and the third merely says that Thales forecast the eclipse of 585, without clearly articulating how far in advance he did so. Thus, while Phlegon may have been a fabulist, he was exploiting opportunities he discerned in the oldest and most authoritative source for Thales' life. Another way of looking at the matter is to see him as offering his own answer to a

question that has long perplexed historians of astronomy: how did the Milesian sage actually manage to predict an eclipse of the sun?

Estimated objective chronology:

585 BCE: disquisition on solar eclipse
around 547: active for, or against, Croesus of Lydia

PHERECYDES THE SYRIAN

1. Aristotle 4th century BCE

A. *Poetry*, via Diogenes Laertius, *Lives* 2.46

"Aristotle in the third book of his *Poetry* says that Antilochus of Lemnos engaged in polemic with Socrates… and Pherecydes with Thales."

B. *Constitution of Samos*, via Codex Vaticanus 997 (Rose 611.31)

"Pherecydes the Syrian was devoured by lice and died on Samos after he poked his finger through a hole for a visiting Pythagoras and showed him that it was stripped to the bone."

2. Theompompus 4th century

via Diogenes Laertius, *Lives* 1.116

"Theopompus says that [Pherecydes] was the first to write about nature and the gods."

3. Aristoxenus, *Pythagoras and his Acquaintances* 4th century

via Diogenes Laertius, *Lives* 1.118

"Aristoxenus in his *Pythagoras and his Acquaintances* says that Pherecydes fell sick and was buried by Pythagoras on Delos."

4. Dicaearchus 4th century

via Porphyry, *Life of Pythagoras* 56

"And then, some say, while the companions of Pythagoras were meeting at the house of Milo the athlete at a time when Pythagoras was on a journey – he had gone to his former teacher Pherecydes on Delos in order to treat and care for him while he suffered from a supposed lice infestation – they were all burned up in a fire... But Dicaearchus and the more careful authorities say that Pythagoras too was present at that meeting, since Pherecydes died before Pythagoras set sail from Samos."

5. Neanthes of Cyzicus, *Tales* 4th century

via Porphyry, *Life of Pythagoras* 1

"Neanthes in the fifth book of his *Tales* says that Pythagoras was a Syrian from Syrian Tyre… Mnesarchus [sc. Pythagoras' father] took him to Tyre, introduced him to the Chaldeans and made him part of their group for a time. Once Pythagoras returned to Ionia, he initially made the acquaintance of Pherecydes…"

6. anonymous epistolographer Hellenistic?

via Diogenes Laertius, *Lives* 1.43

"[Thales to Pherecydes:] I have learned that you plan to be the first Ionian to publish a discourse about divine affairs for the Greeks… If it would please you, I am willing to share in a conversation about whatever you are writing on."

7. Alexander Polyhistor, *Successions* 1st century

via Diogenes Laertius, *Lives* 1.116

"Pherecydes of Syros, son of Babys, as Alexander says in his *Successions*, heard Pittacus teach."

8. Cicero, *Tusculan Dialogues* 1.38 1st century

"Pherecydes of Syros was the first to say that human souls are eternal – a very ancient authority; for he was alive when the namesake for my clan [sc. Servius Tullius] was king."
Servius Tullius: 575 to 535 BCE

9. Pliny, *Natural History* 7.205 1st century CE
"Pherecydes of Syros initiated the composition of prose in the age of king Cyrus."
reign of Cyrus: 560 to 530 BCE

10. pseudo-Lucian, *Long Lives* 22 3rd century
"Pherecydes of Syros likewise lived for 85 years."

11. Diogenes Laertius, *Lives* 1.121 3rd century
"Pherecydes was alive during the 59th Olympiad."
59th Olympiad: 544 to 540 BCE

12. Eusebius, *Chronology* 4th century
A. via Jerome, *Chronicle* 103b[n]
"Olympiad 59.4: Pherecydes the historian (sic) is considered famous, Simonides the lyric poet and Phocylides are considered famous along with Xenophanes the naturalist, the writer of tragedies (sic)."
Olympiad 59.4: 541/0 BCE

B. via Cyril of Alexandria, *Against Julian* 521b
"In the 59th Olympiad, the lyric poet Ibycus the lyric poet, the historian (sic) Pherecydes, Phocylides and Xenophanes the composers of tragedies (sic) were alive"
Olympiad 59: 544–540 BCE

C. via *Chronicon Paschale* 269.9
"Olympiad 57.1: The historian Pherecydes was noticed, as was Pythagoras."
Olympiad 57.1: 552/1 BCE[112]

13. The *Suda*, 'Pherekydes' (*phi*-214) 10th century
"Pherecydes of Syros, son of Babys... was around during the time of Alyattes the king of Lydia, so that he was contemporary with the Seven Sages and born around the 45th Olympiad."
reign of Alyattes: ca. 610 to 560 BCE
45th Olympiad: 600 to 596

The early testimonia for Pherecydes define his life through his interactions with better-known thinkers such as Thales and Pythagoras. Aristotle reported that Pherecydes criticized Thales, which would suggest he was the Milesian's junior (1.A). Neanthes of Cyzicus had Pythagoras becoming Pherecydes' student just after he escaped from his father's supervision – around the age of 20, let's say (5).[113] Now the mainstream Hellenistic perception of Pythagoras' lifetime, as I will show below, held that he was born in 562 BCE. Jerome's very precise date for Pherecydes – the 4th year of the 59th Olympiad – corresponds to 541/0 (12.A; cf. B); a reference to the same Olympiad in Diogenes shows that this must be the original Apollodoran date (11).[114] I would suggest that

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[112] The Olympiad datings in the *Chronicon* exhibit unpredictable divergences from the Eusebian standard chronology. However, since this entry falls about 8 years after the capture of Sardis (548 BCE in Jerome/Eusebius) and 9 years before the death of Cyrus (531 in Jerome/Eusebius), it would appear to match Jerome's 541/0 (11.A), as measured by intervals.
[113] For Pherecydes and Pythagoras, see Schibli 1990, 11/12.
[114] Jacoby 1902, 210.

Apollodorus calculated this date based on Neanthes' anecdote, which would synchronize Pherecydes' acme with the year that Pythagoras turned 21 or 22. Supporting this hypothesis is the fact that Pherecydes was named together with Pythagoras in Eusebius' *Chronicle*; while the latter's name dropped out of Jerome, the *Chronicon Paschale* mentions both men (12.C). That Pythagoras is dated to the 60th Olympiad (540–536) in Diogenes Laertius (PYTHAGORAS 27) may also be another relic of a dating which linked the two men to the year 540. Such evidence as we have is thus consistent with the notion that Apollodorus drew his dating for Pherecydes from Neanthes' anecdote. Roman sources used period datings to locate him in time, synchronizing him with figures like Cyrus and Servius Tullius (8, 9).

The date of Pherecydes' death was a subject of debate even in antiquity thanks to its intersection with a controversial episode in Pythagoras' biography. In what follows I will adumbrate a few points which are developed more fully in my discussion of Pythagoras. An old tradition, first attested in Aristotle, held that Pythagoras relocated from Croton to Metapontum in order to avoid a looming outbreak of civic violence there; he sailed away from Croton unobserved, leaving his allies unsure of his whereabouts (PYTHAGORAS 4). Aristoxenus tried to put a positive spin on his absence in a time of crisis by arguing that he had gone to Delos to care for and then bury his elderly teacher Pherecydes (3). Aristoxenus' account would thus synchronize Pherecydes' death with Pythagoras' departure from Croton. Now we shall see later that Pythagoras' departure took place sometime between 500 and 495 BCE; thus, in this version of events Pherecydes' death should fall during the same years. A tradition preserved by pseudo-Lucian says that Pherecydes lived to be 85 years old (10). Combined with the Eusebian/Apollodoran floruit, 541, this yields 496 as a year of death – a date which falls right in the aforementioned temporal window. It would appear that whoever

came up with an 85-year lifespan was working from a timeline, presumably that of Apollodorus, which followed the accounts of Aristoxenus and Neanthes.

However, Aristoxenus' account of Pherecydes' demise was not the only or the most authorative one. Dicaearchus countered it by claiming that Pherecydes had passed away on Samos several decades earlier, before Pythagoras had even left his homeland (4). Dicaearchus' position is supported by Aristotle, who also had Pherecydes dying on Samos in Pythagoras' company (1.B), and Duris of Samos, who in his history of the island copied out an epitaph he found on Pherecydes' tomb (Diogenes Laertius, *Lives* 1.119).[115] A death on Samos would have to date before 522 BCE, the last time that Pythagoras set foot on Samian soil, and probably closer to 530, since Pythagoras is said to have spent the 520's in Egypt. The combined testimony of Aristotle, Dicaearchus, and Duris should thus be preferred to Aristoxenus' account. If Pherecydes passed away sometime around 530, a reasonable estimate for his life dates would be ca. 600 to 530.

The *Suda*'s chronology for the sage fits quite nicely with this estimate (13), since it places his birth in the quadrennium 600 to 596 BCE, and synchronizes him with the Seven Sages (ca. 580) and the reign of Alyattes of Lydia (ca. 610 to 560). This chronology is incompatible with Apollodorus' if one assumes that his *Chronicle* presented 541 as a floruit date; but for all we know that scholar may have simply dated the meeting between Pherecydes and Pythagoras meeting without implying that Pherecydes was forty at the time. Jacoby's proposal to emend the *Suda*'s Olympiad date is thus unnecessary.[116]

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[115] Duris could not have found it on Delos, since the Athenians had removed all tombs from the island during the Peloponnesian War (Thucydides, *Histories* 3.104.1/2).

[116] See Jacoby 1947, 22, with discussion.

A tradition that goes back to the Hellenistic era maintained that Pherecydes was the author of the first book of Greek prose (6, 9). The tradition can be traced back even further, to Theopompus, if we interpret (2) to mean that Pherecydes was the first to *write* about nature and the gods, rather than compose poetry on these subjects. The other potential rivals for this title would include Hecataeus of Miletus, who published no earlier than 515 BCE and probably in the 500's, along with Acusilaus of Argos, who was active shortly before Darius' invasion, so around 500 (Josephus, *Against Apion* 1.13). Heraclitus' treatise falls within a decade of 500, and Anaximander's treatise, I will show later, was published around the same time. Thus, this tradition would entail a *terminus ante quem* for Pherecydes' book ca. 515. However, if Pherecydes died before Pythagoras left Samos for good, its date of completion must be pushed back at least a decade earlier, into the 420's or 430's. It is also worth noting that since Pherecydes had no other known students and founded no school, Pythagoras must have played an important role in seeing to its preservation.

A final comment is in order regarding Pherecydes' ethnicity. In his otherwise fine study of Pherecydes, Schibli reaffirmed the view expressed by Diogenes Laertius that Pherecydes Σύριος came from the small Greek island of Syros.[117] Now Pherecydes is said to have drawn on Phoenician sources for his work (Eusebius, *Preparation for the Gospel* 1.10.50), and Clement claimed that he took the premise for his narrative from the 'prophecy of Kham' (Χάμ, *Stromata* 6.53.5). The latter word is probably a scribal error for Χνά, which is the early Greek transliteration of *kn'n*, the name the Phoenicians gave their land; the term Χνά was already known to Hecataeus of Miletus (Herodian, *On Peculiar Style* 1.8). Pherecydes' putative source would thus be a Phoenician 'prophecy'.

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[117] Schibli 1990, 1n1.

The non-Greek name of Pherecydes' father Babys suggests family roots in north-central Anatolia, which is where the Greeks first encountered men they called 'Syrians'.[118] Theological prose narratives had a long history in the Levant, and one would expect the man who introduced them to Greece to come from a bilingual, bicultural background. These considerations make it entirely plausible that Pherecydes was of 'Syrian' heritage. It is true that in later Greek usage, Σύρικος is a Syrian and Σύριος a man from the island of Syros[119]; our sources always call Pherecydes Σύριος, and several anecdotes of Hellenistic provenance link him to the island. However, in its earliest occurrences (early-to-mid fifth century) the adjective or substantive Σύριος consistently means 'Syrian' or 'Assyrian'.[120] Pherecydes' ethnic label was likely established before the usage of the term switched; later, when its denotation changed, an anachronistic interpretation arose which made the first Greek prose author a native of the small Cycladic island of Syros. Neanthes of Cyzicus considered Pythagoras to be a Syrian and a student of Pherecydes, a combination that would make more sense if he considered his teacher Syrian as well (Porphyry, *Life of Pythagoras* 1). The weight of the evidence thus suggests that Pherecydes was a Greek-speaker who had family ties on his father's side to central Anatolia or the northern Levant.

Estimated objective dates

Around 600 BCE:	born
540's or 530's:	Pythagoras' instructor

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[118] Schibli 1990, 1n.2, West 1971, 3, Herodotus, *Histories* 1.72.1, 76.1, Huxley 1960, 17–23.

[119] So Stephanus of Byzantium, *sub verbo*.

[120] Aeschylus, *Persians* 84, Herodotus, *Histories* 1.72.1, 76.1, 7.63.

XENOPHANES OF COLOPHON

1. Xenophanes 5th century BCE

A. via Athenaeus, *Sophists at Dinner* 54e

Such things one should discuss near the fire, in winter's season,
reclining on a soft couch with a full stomach,
drinking sweet wine, munching on chickpeas:
'What sort of man are you, my friend? How many are your years?
How old were you when the Mede came?'

B. via Diogenes Laertius, *Lives* 9.19

"The years total seven and sixty now
which have tossed my worried mind over Greek lands;
and before that, twenty-five more years since my birth,
assuming I know how to reckon these things accurately."

2. Plato, *Sophist* 242d 4th century

"Our local Eleatic tribe, which began with Xenophanes and goes back even further, tells a story to the effect that what we call 'all things' are in fact one. Some Muses from Ionia and Sicily later had the same idea, that the safest thing was to weave both together and say that Being is simultaneously many things and one, held together by hostility and friendship."

3. Aristotle, *Metaphysics* 1.5, 986b21 4th century

"Xenophanes was the first of these men to make things One (for Parmenides is said to have been his student)."

4. Theophrastus, *Physics* 4th century
via Simplicius, *On Aristotle's Physics* 22.27
"Theophrastus says that Xenophanes of Colophon, the teacher of Parmenides..."

5. Timaeus, *Histories* 4th century
via Clement of Alexandria, *Stromata* 1.64.2
"Timaeus says that [Xenophanes] was alive during the time of Hieron the ruler of Sicily and the poet Epicharmus."
Hieron's rule: 478 to 467 BCE
Epicharmus' floruit: 480's and 470's

6. Sotion, *Successions* 2nd century
via Diogenes Laertius, *Lives* 9.18
"Xenophanes lived at the same time as Anaximander, says Sotion."

7. Apollodorus, *Chronicle* 2nd century
via Clement of Alexandria, *Stromata* 1.64.2
"Apollodorus says [Xenophanes] was born during the 40th Olympiad and survived until the times of Darius and Cyrus."
40th Olympiad: 620–616 BCE
Darius: 522 to 486
Cyrus: 560 to 530

8. Sextus Empiricus, *Against the Mathematicians* 1.257 2nd century CE
"Xenophanes of Colophon was born around the 40th Olympiad."

9. Hippolytus, *Refutation of All Heresies* 1.14.1 3rd century
"Xenophanes of Colophon, son of Orthomenes, lived until the time of Cyrus."

10. pseudo-Lucian, *Long Lives* 20 3rd century
"Xenophanes the son of Dexinus… lived 91 years."

11. Diogenes Laertius, *Lives* 9.18, 20, 21 3rd century
A. "After [Xenophanes] had been exiled from his homeland he spent time in Zancle in Sicily and also in Catana... He composed poems totaling 2,000 lines on the foundation of Colophon and the settlement of Elea in Italy... He was in his prime during the 60th Olympiad."
60th Olympiad: 540–536 BCE
B. "Although Parmenides heard Xenophanes teach he did not follow him."

12. Censorinus, *The Day of Birth* 15.3 3rd century
"Xenophanes of Colophon lived more than a hundred years."

13. Pseudo-Iamblichus, *Theology of Arithmetic*, 52.8-53.7 4th century
"History tells us that about 514 years passed from the Trojan War to the age of Xenophanes the natural philosopher, Anacreon, and Polycrates, Harpagus the Mede's besiegement of Ionia and the upheaval which the Phocaeans who settled in Massalia were fleeing; Pythagoras was coeval with all of this."

14. Eusebius, *Chronology* 4th century
A. via Jerome, *Chronicle* 103b[d]
"Olympiad 56.3: Xenophanes of Colophon is noticed."
Olympiad 56.3: 554/3 BCE
B. via Jerome, *Chronicle* 103b[p]

"Olympiad 59.4: Pherecydes the historian (sic) is considered famous; Simonides the lyric poet and Phocylides are considered famous along with Xenophanes the natural philosopher, writer of tragedies."
Olympiad 59.4: 541/40 BCE

C. via Cyril of Alexandria, *Against Julian* 521b
"In the 59th Olympiad, Ibycus the lyric poet, Pherecydes the historian, Phocylides and Xenophanes the composers of tragedies were alive."
Olympiad 59: 544–540 BCE

D. via Augustine, *City of God* 18.25
"In the era of the Jewish Captivity, Anaximander, Anaximenes, and Xenophanes were famous."
Babylonian captivity: ca. 600 to 539 BCE

E. via *Chronicon Paschale* 267.10
"Olympiad 54.2: Xenophanes of Colophon was noticed."
Olympiad 54.2: 563/2 BCE[121]

F. via Syncellus, *Select Chronography* 452.2
"Phocylides and the natural philosopher Xenophanes, composer of tragedies, were noticed."

Among the earliest evidence for Xenophanes' life, four pieces of information make it possible for us to situate the poet-philosopher within a broad historical timeframe. To start with, he composed a poem on Elea's foundation, an event which can be dated to the year 540 BCE

[121] This entry falls 2 years after the ephorate of Chilon (556/5 BCE in Eusebius/Jerome) and 3 years before Croesus' invasion (551/50), and so corresponds to the entry for Xenophanes under 554/3 in Jerome (14.A).

based on the narrative in Herodotus 1.167 (11.A); second, Xenophanes knew Pythagoras well enough to relate an anecdote involving his belief in reincarnation (PYTHAGORAS 1); third, he spent time in Syracuse during Hieron's reign, which spanned the years 478 to 467 (5); and fourth, he was considered a teacher of Parmenides (2, 3, 4, 11.B). These clues indicate that Xenophanes was alive during the end of the sixth-century and the first third of the fifth. To be more precise about his dating, we need to find a way to connect the poet's statement (1.B) that he went into exile from his native Colophon in his twenty-sixth year to a datable historical event. An obvious way to proceed is to assume that fragment 1.A belongs to the same original context as 1.B, and that when Xenophanes gave his age when he departed Colophon, he was addressing the question of how old he was "when the Mede came." The "Mede" referred to here is Harpagus, Cyrus' Median general, who forced Colophon and the other cities of Ionia into submission around 545. If Xenophon was 26 years old at the time, that would place his year of birth in 570, counting inclusively, and have him living to at least 479.[122] If the poet left Colophon a few years after Harpagus arrived, his dates would have to be shifted down accordingly. Accordingly we might place his birth around 570 to 565, his exile in 545 to 540, and the last datable event in his life – the writing of the lines in 1.B – in 479 to 475. These dates fit with the broad dating clues listed above, and are the best we can do with the evidence we have.

The biggest controversy in modern discussions of Xenophanes' chronology is what dating indication Apollodorus gave for him. Clement, who is the only source to mention Apollodorus by name, offers an Olympiad for his birth together with a verbal synchronism which says that Xenophanes' life extended "until the times of Darius and

[122] Woodbury 1961, 155. The first to suggest these two fragments were connected was, I believe, Fränkel 1925, 176n1.

Cyrus" (7; cf. 9). Jacoby acutely observed that this verbal indication should reflect Apollodorus' original phrasing, since the naming of the kings in reverse order makes sense as an effort to accommodate the demands of meter.[123] We may add that synchronizing his life with the reigns of the two kings also offered Apollodorus a crude but economical way to communicate Xenophanes' dates. Cyrus came to power in 560 BCE, a few years after Xenophanes was born, and Darius' life ended in 486, about 15 years before Xenophanes died. The 75-year period defined by the reign of these two kings is thus a good approximation of Xenophanes' 92+ year lifespan. Clement's verbal synchronism hews quite closely to Apollodorus' original; it is only his Olympiad dating that is problematic. Where did his assertion that Xenophanes was born in the 40th Olympiad come from?

The answer, I think, is that it arose when an alteration of the dating label triggered a misunderstanding of the underlying chronology. Let us start with the text of Eusebius, which recorded that Xenophanes was alive or noticed in 541 BCE (14.B; cf. C).[124] This clearly originated as a dating for the beginning of Xenophanes' exile, when he was 26 years old – but in the text of the entry, the age indication has dropped out, a loss that rendered the meaning of the entry potentially unstable. Chronographer P, who was active sometime between Apollodorus and Diogenes Laertius, characterized the 60th Olympiad (540 to 536) as the period of Xenophanes' *acme*, not his 26th birthday (11.A). This mislabeling had the effect of pushing his year of birth back by about 15 years, so that it fell in the 50th Olympiad (580 to 576). A subsequent chronographer understood the 50th Olympiad to be a key date in Xenophanes' life, but, misled by the ambiguity of the verb γέγωνε,

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[123] Jacoby 1902, 205.

[124] To judge from sources that made use of Eusebius, the original Greek verb was either γεγόνασιν (Cyril, 14.C) or ἐγνωρίζετο (Syncellus, 14.E).

misinterpreted this date as a floruit and moved Xenophanes' birth back still further, to the 40th Olympiad (620 to 616), which is the date preserved in both Sextus and Clement (7, 8).

The sorts of labeling errors postulated here can be readily paralleled elsewhere. By contrast, previous explanations of these dates rely on rather far-fetched premises. Diels and Jacoby postulated that transmission errors led to the 40th Olympiad replacing the 50th in both Sextus and Clement; but that this mistake should have occurred in two independent sources is implausible.[125] Jacoby also proposed that the date 540 BCE in Diogenes arose through a synchronism of Xenophanes' floruit with the foundation date for Elea.[126] Yet while Xenophanes did compose a poem on Elea's foundation, he obviously did not do so in the year the event happened; furthermore, the foundation of Elea is not mentioned by Eusebius, which suggests that it was not incorporated into the chronological vulgate. Leonard Woodbury attempted to defend an Apollodoran dating of Xenophanes' birth to the 40th Olympiad by postulating a scenario in which Apollodorus synchronized Xenophanes' departure from Colophon with the original foundation of Massalia by Phocaean exiles ca. 595.[127] But this reconstruction is also flawed. For one, there is no evidence that Xenophanes wrote anything about the foundation of Massalia. Secondly, the ancient dates for the foundation of Massalia are not what Woodbury claims they are: Timaeus placed the foundation 120 years before the Battle of Salamis, i.e. in 600; Solinus likewise dates it to the 45th Olympiad (600 to 596) and Eusebius to the year 598.[128] If Apollodorus linked Xenophanes' 26th year to the

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[125] Diels 1876, 22–24, Jacoby 1902, 204–209.
[126] Jacoby 1902, 207/8.
[127] Woodbury 1961, 134.
[128] Timaeus, via pseudo-Scymnus, *Round Trip* 211-214; Solinus 2.52; Eusebius via Jerome, *Chronicle* 99b[e].

foundation of the city, then his birth date should have been 625, the end of the 38th Olympiad, not 620, the start of the 40th. Furthermore, Woodbury offers no clear explanation for how the alternative birth years 580 or 565 arose. The idea that Apollodorus ignored the obvious implications of Xenophanes' own words in order to advance an alternative chronology based on Massalia's foundation has little to recommend it. A third attempt to reconcile the evidence is also worth noting. Holger Thesleff proposed emending the text of Clement to read, "he survived until the times of Xerxes and Cyrus," lowered Xenophanes' birth year to 540, and had his life extend into the 440's.[129] Surprisingly, there is nothing in the early evidence that would preclude such a downdating. The most substantive objections one could make to Hesleff's proposal are, first, that it departs too far from the range suggested by the transmitted Olympiad dates; second, that it dispenses with the elegant hypothesis that Harpagus was the cause of Xenophanes' exile; and third, the arbitrary nature of the emendation itself.

A passage from pseudo-Iamblichus names Xenophanes in a multi-person synchronism that connects him to Anacreon, Polycrates, the onslaught of Harpagus, and Pythagoras (13). This is obviously a period dating; the arrival of Harpagus (545 BCE) constitutes its start point and the accession of Polycrates (530) its end point. If one investigates the math in the passage, as we shall do in the section on Pythagoras, it emerges that the author dated this period to 537, which for all intents and purposes is its middle year.[130]

The 15-year shift produced by Chronographer P when he misidentified 540 as an acme date for Xenophanes rather than his 26th birthday triggered a further set of confusions in the late chronographic tradition. One scholar attempted to identify the date of Xenophanes'

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[129] Thesleff 1957.

[130] See page 141.

exile at age 26 *using 580 BCE as a starting point*, and ended up with 555/4, a date that appears in Eusebius labeled as a key date (14.A). As it happens, there are a slew of 15-year errors in Eusebius and the *Suda* attaching to key dates for philosophers from the middle decades of the sixth-century. Such errors can be found in the reports for Pherecydes, Pythagoras, Anaximander, and Anaximenes.[131] The misdating of Xenophanes' 26th year thus seems to have led directly to a set of abnormally early dates. The identity of the scholar who introduced these misdatings is unknown, but it is tempting to blame Porphyry, whose *History of Philosophy* was an important source for Eusebius, and is often cited in the *Suda*'s biographies. This systematic 15-year error is what I refer to as the 'Xenophanes gap'.

Estimated objective dates

570 to 565 BCE:	born
soon after 545:	left Colophon
after 535:	poem on the foundation of Elea
after 520:	acquainted with Pythagoras
500 to 490:	Parmenides makes his acquaintance
between 478 and 467:	at the court of Hiero
479 to 473:	composed poem mentioning his age

PYTHAGORAS OF SAMOS

1. Xenophanes of Colophon 6th century BCE
via Diogenes Laertius, *Lives* 8.36
"And once while passing a puppy that was being mistreated,

[131] See pages 69/70.

Pythagoras, they say, pitied it and spoke these words:
'Stop, don't beat it! It belongs to a dear friend;
I recognized his soul when I heard it cry out.'"

2. Alcidamas of Elaea, *Physics* 4th century
via Diogenes Laertius, *Lives* 8.56
"Alcidamas in his *Physics* says that Zeno and Empedocles both heard Parmenides teach at around the same time, and later moved on, Zeno to practice philosophy on his own, Empedocles to hear Anaxagoras and Pythagoras teach; he emulated the elevation of the latter's way of life and bearing, and the former's theory of nature."

3. Andron of Ephesus, *The Tripod* 4th century
via Eusebius, *Preparation for the Gospel*, 10.3.6, 8
"Andron in his *Tripod* recorded stories about Pythagoras' predictions… the story of the capture of Sybaris…"

4. Aristotle 4th century
via Apollonius, *Marvellous Lore* 6
"Pythagoras son of Mnesarchus came after them [sc. Epimenides, Aristeas, Hermotimus, Abaris, and Pherecydes]... To the Pythagoreans he foretold the approaching civil strife, which was the reason he sailed away to Metapontum unobserved..."

5. Aristoxenus 4th century
A. via Porphyry, *Life of Pythagoras* 9
"At the age of forty, Aristoxenus says, Pythagoras observed Polycrates' tyranny become so severe that it was not the right thing[132] for a free-

[132] Reading, for the manuscript's καλῶς, either μὴ καλῶς or κακῶς.

born man to endure his domination and despotism, and so he set sail for Italy."

B. via Diogenes Laertius, *Lives* 1.118

"Aristoxenus in his work *Pythagoras and his Acquaintances* says that Pherecydes fell ill and was buried by Pythagoras on Delos."

6. Dicaearchus 4th century

via Porphyry, *Life of Pythagoras* 56

"But Dicaearchus and the more accurate sources say that Pythagoras was present at the attack, since Pherecydes died before he left Samos; that a group of forty of his associates was gathered in someone's house when they were surprised; and that the majority were killed in groups scattered at random throughout the city. With the defeat of his allies Pythagoras sought safety in the port at Caulonia and yet again at Locri. The Locrians sent some of their representatives to their borders to hear his request, then told him in reply, 'Pythagoras, we hear that you are a wise and talented man, but we have no problem with our own laws, and would like to abide by the ones we have. Go somewhere else, taking from us any necessities you happen to need'. Thus dismissed by the city of Locri, he sailed to Tarentum, and after receiving the same treatment there as he had at Croton, he went to Metapontum."

Cf. Themistius, *Oration* 22, 285b.

7. Neanthes of Cyzicus 4th century

A. via Diogenes Laertius, *Lives* 8.53, 55, 74

"In his letter to Philolaus, Telauges the son of Pythagoras says that Empedocles was the son of Archinomus… But [Neanthes] did not say which of the Pythagoreans in particular it was whom Empedocles heard teach; for, he said, the letter in circulation under Telauges' name to the effect that he was a partner of Hippasus and Brontinus should not be

deemed credible… In the epistle of Telauges mentioned above it is said that [Empedocles] slipped into the sea [sc. from a boat] because of his advanced age and died."

B. via Porphyry, *Life of Pythagoras* 55

"Gathering his allies, [Cylon] began to slander Pythagoras and prepare for an attack against him and his associates. At that point, some say, when his companions were meeting at the house of the athlete Milo during Pythagoras' absence – he had traveled to Delos to see his teacher Pherecydes of Syros, and to be with and care for him while he was reportedly afflicted with an infestation of lice – they set fire to every single man there and stoned them, with only two escaping the fire, Archippus and Lysis, as Neanthes says; Lysis settled in Greece, later joining Epaminondas, whose teacher he became."

8. Duris of Samos, *Annals* 4th century

A. via Porphyry, *Life of Pythagoras* 3

"Duris of Samos, in the second book of his *Annals*, lists Arimnestus as [Pythagoras'] son, and says that he was a teacher of Democritus. When Arimnestus came back from exile, he set up a bronze dedication in the temple of Hera, about two cubits across, on which the following inscription was engraved. 'I was dedicated by Pythagoras' own son Arimnestus, who discovered in ratios many musical techniques.' This dedication was removed by Simus the Musician, who appropriated its canon and published it as his own. There were seven musical techniques inscribed on it, but thanks to the one which Simon stole the others engraved on the dedication all disappeared."

B. via *Codex Parisinus Supplementi Graeci* 676

"'The man with long hair at Samos': They say there was a Samian boxer with long hair who went to Olympia and won after being mocked by his opponents for looking like a woman; he became proverbial.

Eratosthenes says that Pythagoras of Samos won with long hair during the 48th Olympiad; Duris represents this as Pythagoras being excluded, challenging the men, and beating many of them."

9. Timaeus, *Histories* 4th century

A. via Diogenes Laertius, *Lives* 8.54

"Timaeus records in his ninth book that Empedocles heard Pythagoras teach, adding that after being accused of plagiarizing teachings… he was from that time forward forbidden to participate in discussions."

B. via Pompeius Trogus, *Histories*, via Justin, *Epitome* 20.4.17

"After spending 20 years at Croton, Pythagoras emigrated to Metapontum and died there."[133]

10. Hermippus of Smyrna 3rd century

via Diogenes Laertius, *Lives* 8.40

"Hermippus says that when the men of Acragas and Syracuse were at war, Pythagoras went out with his companions and stood in the Agrigentine front line. They suffered a reverse and Pythagoras was killed by the Syracusans while steering around a bean field; the others, thirty-five in number, were burned alive at Tarentum for plotting to set up a rival government."

472 BCE (Diodorus Siculus, *Library of History* 11.53)

11. Eratosthenes, *Olympic Victors* 3rd century

via Favorinus, *Varied History*, via Diogenes Laertius, *Lives* 8.47

"Eratosthenes (according to what Favorinus reports in book eight of his *Varied History*), said this man [sc. Pythagoras] was the first to box using technique, in the 48th Olympiad, letting his hair grow long and wearing

[133] Since many of the precise details in Trogus' account come from Timaeus, it is likely that this time interval does as well; see von Fritz 1940, 42.

a purple robe; after being excluded from the boys' games and jeered at, he immediately joined the mens', and won."

Olympiad 48: 588 to 584 BCE cf. Eusebius, *Chronography*, p. 93 Karst

12. Heraclides Lembos 2nd century

via Diogenes Laertius, *Lives* 8.44

"Pythagoras, according to Heraclides the son of Serapion, died at the age of eighty, consistent with his own outline of the human lifespan; but the majority of people say he was ninety years old."

13. Alexander Polyhistor 1st century

A. via Eusebius, *Chronography*, page 14 Karst

"After [describing] all this, Polyhistor again turns to the works and deeds of Sennacherib. The Hebrew sources also refer to his son[s]. And he records them one by one. They say that the philosopher Pythagoras lived in this period, during their time. Now following Sammuges, Sardanapallus ruled the Chaldeans for 21 years." (translated by Robert Bedrosian)

B. via Abydenus, via Eusebius, *Chronography*, page 18

"After [Sennacherib] Nergilus became king, but he was slain by his son Adramelus. The latter was slain by his brother Axerdis, who shared the same father but not the same mother. He pursued troops to the city of Byzantium and entered it. [Axerdis] was the first to muster mercenary troops, one of whom was Pythagoras, who became a student of Chaldean wisdom. Axerdis conquered Egypt and parts of inner Syria. He was succeeded by Sardanapallus." (translated by Robert Bedrosian)

C. via Clement, *Stromata* 1.69.6

"Alexander in his work *Pythagorean Symbols* reports that Pythagoras was a student of Nazaratos the Assyrian."[134]
cf. Cyril, *Against Julian*, 4.28

14. pseudo-Pythagoras, treatise on squill 1st century[135]
via pseudo-Galen, *Easy Remedies* 14.567
"The true old man of Samos (and I'm sure you know how far he extended his time) mentions in his treatise… that when he began to use squill, he was fifty years old, and that he lived to be 117, sound and free of illness when he died."

15. Cicero 1st century
A. *The Republic* 2.28
"It has been discovered that Pythagoras came to Sybaris, Croton, and that part of Italy when Lucius Tarquinius Superbus was in the fourth year of his reign; for the 62nd Olympiad marks both the beginning of Superbus' rule and Pythagoras' arrival. Hence by counting out the years of the kings one can understand why it was about 140 years after Numa's death that Pythagoras set foot in Italy."
62nd Olympiad: 532–528 Numa's death: 673 BCE

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[134] As the full context makes clear, 'Nazaratos' and 'Axerdis' refer to Esarhaddon, ruler of Assyria from 681 to 669 BCE. According to Aristoxenus (Hippolytus, *Refutation of All Heresies* 2.12), Pythagoras visited a certain 'Zaratas the Chaldean' during his sojourn in the east. Alexander, rejecting the usual identification of this person with Zoroaster, equated him instead with Esarhaddon. For further discussion see Schnabel 1923, 145–147.
[135] Pseudo-Pythagoras' treatise on squill, cited by Pliny (*Natural History* 19.94, 20.97–101), Columella (*Country Things* 12.33) and Dioscorides (*Medical Substances* 2.171), was already known to Demetrius of Magnesia (the source of Diogenes Laertius, *Lives* 8.47), which places its date before ca. 50 BCE.

B. *Tusculan Dialogues* 1.38

"This opinion of [Pherecydes] was developed by his student Pythagoras in particular, who resided in Magna Graecia at that time after coming to Italy during the reign of Superbus."

Tarquinius Superbus: ca. 535 to 509 BCE

C. *Tusculan Dialogues* 4.2

"Pythagoras, who was in Italy at the same time that Brutus liberated our fatherland..."

Brutus expels Tarquin: 509

16. Philodemus(?) *Herculaneum Papyrus* 1788, fr. 4, T7.1-6

1st century

[On Crete he went down into the Idaean? c]ave [with Epimenides?] and [after learning?] things about the go[ds there considered] secrets [he sailed] to Croton [and met his end having lived?] ninety [years and was buried] in Meta[pontum…]

17. Diodorus Siculus, *Library of History* 10.3.1, 12.9.2 1st century

A. "When Thericles was archon at Athens, during the 61st Olympiad, Pythagoras the philosopher was noticed, having already made much progress in his education."

Thericles' archonship: 533/2 BCE

61st Olympiad: 536–532

B. "Among them a demagogue named Telys rose up who made accusations against the most important men and convinced the Sybarites to send 500 of their wealthiest citizens into exile and confiscate their property. The exiles went to Croton and sought refuge at altars in the agora; Telys sent representatives to the Crotonites to demand that they either hand over the exiles or prepare for war. The assembly met to decide whether they should hand over the suppliants to the Sybarites or

suffer a war with their powerful neighbors. The senate and the people were undecided, and initially the majority inclined to hand over the suppliants, due to the threat of war; but when the philosopher Pythagoras advised them to protect the suppliants, they changed their minds and chose war on behalf of the suppliants and their safety."
510 BCE cf. Herodotus, *Histories* 5.44/5

18. Dionysius of Halicarnassus, *Roman Antiquity* 2.59.1 1st century CE
"There are many who have written that Numa was a student of Pythagoras and that when the Romans made him king of their city he was studying philosophy at Croton. But the period of Pythagoras' lifetime conflicts with this assertion. In fact, Pythagoras lived later than Numa, not by a few years, but by four whole generations, as we have learned from universal histories. For Numa took up his Roman kingship in the middle of the sixteenth Olympiad, while Pythagoras spent time in Italy after the fiftieth Olympiad."
16th Olympiad: 716 to 712 BCE 50th Olympiad: 580 to 576

19. Livy, *From the City's Founding* 1.18.2 1st century
"Some assert falsely that the source for [Numa's] learning was Pythagoras of Samos, no one else being available; but there is a consensus that Pythagoras was holding meetings for young men interested in his studies at places like Metapontum, Heraclea, and Croton, on Italy's farthest shores, more than a hundred years later, when Servius Tullius was king at Rome."
Servius Tullius: king of Rome, 575 to 535 BCE

20. Strabo, *Geography* 14.1.16 1st century
"In the time of Polycrates, according to the historians, Pythagoras observed the growth of the tyranny and left the city [sc. Samos], going

off to Egypt and Babylon for learning's sake; when he returned and saw that the tyranny continued to drag on, he sailed to Italy and spent the rest of his life there."

21. *Tabula Capitolina* (*IG* XIV.1297) 2.20/1 1st century
"There have been 540 years since Cambyses conquered Egypt and Pythagoras was captured."
i.e. between 525 and 522 BCE[136]

22. Pliny the Elder, *Natural History* 2.37 1st century
"[The planet Venus'] nature was first grasped by Pythagoras of Samos around the 42nd Olympiad, which was the 142nd year of Rome."
42nd Olympiad: 612 to 608 BCE A.U.C. 142: 612

23. Tatian the Syrian, *Oration to the Greeks* 41.9 2nd century
"Pythagoras was alive around the 62nd Olympiad."
62nd Olympiad: 532 to 528 BCE

24. Aulus Gellius, *Attic Nights* 17.21.6 2nd century
"Pythagoras came to Italy when the son of Tarquin, who bore the cognomen Superbus, held the office of king."
reign of Tarquinius Superbus: ca. 535 to 509 BCE

25. anonymous epistolographer, page 601 Herscher 3rd century?

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[136] Some scatter in the dates from the document makes it hard to pinpoint the exact starting point for its year-counts, but it appears to be 15 CE. The nearest complete entry in the chronicle synchronizes the start of Peisistratus' rule at Athens (561 BCE) with Aesop's death (traditionally set in 564) and locates both events 579 years in the past. This means that an event 540 years in the past should fall in 525 or 522; the actual year of Cambyses' invasion was 525. See, further, Balcer 1972.

"Pythagoras to Hieron: my life is peaceful and secure, while yours comes nowhere close to mine…"
Hieron I: reigned from 478 to 467 BCE

26. Clement, *Stromata* 1.65.2, 80.2, 129.3 3rd century
A. "One finds Pythagoras in the time of Polycrates' tyranny, around the 62nd Olympiad..."
B. "Antilochus gives 312 years as the total... from Pythagoras' coming of age to the death of Epicurus."
Epicurus' death: 271 BCE
C. "Pythagoras, who is mentioned around the 62nd Olympiad."

27. Diogenes Laertius, *Lives* 8.45 3rd century
"[Pythagoras] was in his prime during the 60th Olympiad."
60th Olympiad: 540 to 536 BCE

28. Solinus, *Wonders of the World* 11.31 3rd century
"Nothing in Samos is as famous as her citizen Pythagoras, who later left his ancestral home, offended by a tyrant's hubris, and sailed to Italy when Brutus was consul, the one who drove the kings out of the city."
consulship of Brutus: 509 BCE

29. Iamblichus, *The Pythagorean Life* 11, 19, 35, 265 4th century
A. "When the tyranny of Polycrates began to sprout, Pythagoras was 18 years old; he foresaw... that it would hinder his development [and left]."
B. "He spent 22 years in Egypt... until he was taken prisoner by Cambyses' entourage and brought to Babylon… After associating with [the Babylonians] for 12 more years he returned to Samos at age 56..."
C. "He came to Italy in the 62nd Olympiad..."
62nd Olympiad: 532 to 528 BCE

D. "It is said that Pythagoras led his school for one shy of forty years, and that he lived to be nearly 100."

30. Pseudo-Iamblichus, *Theology of Arithmetic* 52.8 4th century(?)
"Androcydes, the Pythagorean who wrote *On Passwords*, and Eubulides the Pythagorean, and Aristoxenus, Hippobotus, and Neanthes, who all recorded the deeds of the man, said that his reincarnations took place every 216 years. So, after this many years Pythagoras reaches rebirth and lives again, and obtains a new life on occasions this far apart just as he did after the first full cycle, after the return of the soul-making cube of six... This is in harmony with the fact that he possessed the soul of Euphorbus during this time. For history tells us that about 514 years passed from the Trojan War to the age of Xenophanes the natural philosopher, Anacreon, and Polycrates, Harpagus the Mede's besiegement of Ionia and the upheaval which the Phocaeans who settled in Massalia were fleeing; Pythagoras was coeval with all of this. At any rate history records that after Cambyses captured Egypt, Pythagoras, who had been studying with the priests there, was taken prisoner, and ended up in Babylon, where he was initiated into the barbarians' mysteries. Cambyses was synchronous with the tyranny of Polycrates at that point, which Pythagoras was fleeing when he went to Egypt. So if you subtract this period twice, that is, twice 216 years, what remains are the 82 years of his life."

31. Eusebius, *Chronicle* 4th century
A. via Jerome, *Chronicle* 104b[i]
"Olympiad 62.3: The natural philosopher Pythagoras is noticed."
Olympiad 62.3: 530/29 BCE
B. via Jerome, *Chronicle* 107[f]
"Olympiad 70.4: The philosopher Pythagoras dies."

Olympiad 70.4: 497/6 BCE

C. via Cyril of Alexandria, *Against Julian* 521b
"In the 62nd Olympiad Pythagoras is said to have been alive."
62nd Olympiad: 532–528 BCE

D. via *Succinct Chronography* 29.14
"Cyrus, king of the Persians, [ruled] for 30 years… The natural philosopher Pythagoras was noticed [then], as was Anaxagoras (sic)."

E. via *Succinct Chronography* 30.4–8
"Cambyses, [who ruled] for eight years, was the second man called Nebuchadnezzar by the Hebrews… He took over Egypt, at which time the philosopher Pythagoras of Samos was reportedly in his prime."

F. via *Chronicon Paschale* 267.8
"Olympiad 54.1: the natural philosopher Pythagoras was noticed."
Olympiad 54.1: 564/3 BCE[137]

G. via *Chronicon Paschale* 269.9
"Olympiad 57.1: The historian (sic) Pherecydes was noticed, as was Pythagoras."
Olympiad 57.1: 552/1 BCE[138]

32. Syncellus, *Select Chronography* 397.9–17, 454.10, 469.19

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[137] This entry in the *Chronicon* falls 1 year after the ephorate of Chilon (556/5 BCE in Jerome Eusebius) and 1 year before the notice of Xenophanes (554/3 in Jerome/Eusebius), and thus should reflect an original Eusebian entry in the year 555/4.

[138] This entry, which falls about 8 years after the capture of Sardis (548/7 BCE in Jerome/Eusebius) and 9 years before the death of Cyrus (531/0 in Jerome/Eusebius), would appear to match Jerome's 541/0 for Pherecydes (11.A).

9th century

A. "Under [Amasis] Cambyses subdued an Egypt that was revolting against his rule with weapons and large battles. He found there among his prisoners of war Pythagoras, who was on a visit for philosophical study, and initiated him at Persia. This, they say, is when Pythagoras went to the Chaldeans and sought wisdom among them; after he left he moved to Italy, avoiding his homeland of Samos because of the tyrant Polycrates, and spent his life there, setting up his Italian school."

B. "Pythagoras of Samos… won a victory in the 51st Olympiad."

51st Olympics: 576 BCE

C. "Pythagoras the philosopher died at age 95 [some manuscripts: 99], or as some say, at 75."

33. anonymous biographer, Photius, *Library* 438b27 9th century

"It is said that Pythagoras lived 104 years."

Anyone attempting to reconstruct a plausible chronology for Pythagoras and his early followers must decide how to adjudicate among the three different dating traditions for his life. The modern Standard Dating for Pythagoras holds that the philosopher was born around 570 BCE, was in his prime in 532, and died in the 490's, all on the presumed authority of Apollodorus. There is also a dating implicit in the vulgate tradition about Pythagoras' life, as representated by the biographies of Diogenes Laertius, Porphyry, and Iamblichus. These narratives agree with the Standard Dating insofar as they place Pythagoras on Samos around the time of Polycrates (ca. 532 to 522), and move him to Italy soon thereafter; but they extend his life well past 500, seeming to connect his death to a violent uprising against the Pythagoreans that took place in the middle of the century. Finally, an ancient tradition deriving from Eratosthenes maintained that the philosopher won a victory in boxing at the

Olympics while still a young man, reportedly in the year 588, which would place his birth a few years before 600. Most scholars feel confident in dismissing Eratosthenes' dating as the unfortunate lapse of an otherwise brilliant scholar; but the discrepancy between the accepted timeline and the late narrative accounts creates lingering problems for the reconstruction of the last decades of Pythagoras' life. My goal here is to work through the ancient evidence seriatim in order to elucidate what the oldest accepted chronology was and how it was reinterpreted over time. I hope to recover something of value from each of the three traditions and establish rather precise life dates for Pythagoras of 562 to 472.[139]

Like Thales, the famous Samian philosopher left behind nothing in writing; our knowledge of his life and teaching is ultimately founded on traditions preserved by those who were personally acquainted with him. Since those traditions tended to accrete details as time went on, it is particularly important that we start with what appear to be the earliest accounts. A rough *terminus post quem* for his life is provided by Aristotle's claim that Pythagoras came later than various holy men who were active during the early and mid sixth-century (4). The fact that Xenophanes and Heraclitus both spoke about Pythagoras gives us a *terminus ante quem* for his prime years of about 490 BCE (1 and HERACLITUS 1, below). Empedocles, Ion, and Herodotus referred to Pythagoras in terms suggesting that he was no longer alive when they

[139] The most frequently cited modern discussion of Pythagoras' objective chronology is still that of Minar 1942, 133–135, who by and large followed Jacoby 1902, 215–227 and Rohde 1871, 568–572. Delatte 1920 reconstructed a 'Timaean' dating of Pythagoras, which, I believe, is rather close to the objective dating, and which Timaeus may well have known, though solid proof for this is lacking.

wrote; hence the philosopher passed away no later than 450, and possibly much earlier than that.[140]

A story related by the sophist Alcidamas held that, after studying with Parmenides, Empedocles heard Pythagoras teach and came away inspired by his dignified bearing (2) – a face-to-face meeting is clearly implied. This report has often been dismissed due to its chronological implications, yet Alcidamas, who was about a decade older than Plato, is one of our oldest sources; he was also an intellectual 'grandson' of Empedocles, since his own teacher Gorgias had studied with the philosopher-poet.[141] Another credible authority, the historian Timaeus, confirms Empedocles' encounter with Pythagoras (9.A). Such solid pieces of testimony should be treated as anchor points for any chronological reconstruction, not dismissed. Since Empedocles was born around 496 BCE (see below), if his encounter with Pythagoras took place after a period of interaction with Parmenides, it should not date much earlier than 475, and probably fell closer to 470.

Two sources from the early fourth-century, Andron of Ephesus and Aristotle, allude to incidents from Pythagoras' time at Croton. The former scholar, who was roughly contemporary with Alcidamas, said that Pythagoras foretold the capture of Sybaris (3). If the reference here is to Croton's destruction of that city in 510 BCE, this claim would imply that he arrived in Italy before then. Aristotle recorded a story in which Pythagoras warned his followers of civil strife at Croton and slipped away to Metapontum unseen (4). Unfortunately the fragment does not make clear when the episode of violence at Croton Aristotle was referring to took place. An attack on the Pythagorean meeting house at Croton ca. 440 can be ruled out since Pythagoras was long dead

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[140] Empedocles (Diogenes Laertius, *Lives* 8.54), Ion (ibid., 1.120), Herodotus, *Histories* 4.95.

[141] For Alcidamas' biography, see Muir 2001, v.

by then. Timaeus offers a clue to this puzzle by placing Pythagoras' removal from Croton to Metapontum 20 years after his arrival in Italy (9.B). Though his initial arrival is traditionally dated to 532, I will demonstrate below that Pythagoras reached Italy no earlier than 523 (and that this was the general consensus of Hellenistic historians); hence, if we apply Timaeus' 20-year interval, his translation from Croton to Metapontum, and the violence he was fleeing, should date to within a few years of 500. As it happens two other reported episodes of violence at Croton fall during this same time period. The tyrant Cleinias seized power in the city and purged its leading citizens, sending many into exile, just a few years before 494.[142] In addition, a passage in Iamblichus presents a quarrel over the redistribution of conquered Sybarite lands as the pretext for an anti-Pythagorean uprising (*The Pythagorean Life* 254–262). Unfortunately the sources for this account cannot be traced back any further than Apollonius, whose biography of Pythagoras dates to the 1st century BCE or CE. If this narrative does reflect an authentic tradition (transmitted, let's say, by Timaeus), it points, once again, to a date for the violence a few years after Sybaris' destruction, around 500 BCE. The convergence of datings would suggest that we are actually dealing with a single event that different sources described with different points of emphasis. In the original account, I would suggest, Pythagoras fled Croton just ahead of Cleinias' purge, unseen by any of his followers, and ended up in Metapontum. In later versions of this story Pythagoras' personal rival, Cylon of Croton, took over the role of antagonist, and descriptions of the violence were contaminated with details from the better-remembered attack on the Pythagoreans ca. 440. Alternative

[142] Dionysius of Halicarnassus, *Roman Antiquities* 20.7.1. Our only clue to its dating is the fact that Dionysius describes it just before mentioning Anaxilaus' rise to power at Rhegium, which can be dated to 494 or 493.

explanations were also given for Pythagoras' fortuitous escape, as we shall see below.

Among our earliest sources Aristoxenus was apparently the most expansive on Pythagoras' life and teachings, and among the best informed, having been personally acquainted with members of the Pythagorean society who were born around the time Pythagoras died. Aristoxenus recorded the most important piece of information we have for Pythagoras' chronology, a temporal interval combined with a valuable synchronism. After deciding that Polycrates' tyranny had become intolerable, Aristoxenus wrote, Pythagoras left Samos for good and sailed to Italy at the age of 40 (5.A). Since Polycrates' rule began shortly before 530 BCE and ended in 522, Pythagoras' departure should fall somewhere within that window. Now the vulgate account of his life has Pythagoras leaving Samos *twice*: the first time for Egypt, in order to study with the priests there, and the second time for Magna Graecia, after he had returned home from Egypt (20).[143] Since Pythagoras' fortieth year is linked to his second, final departure from Samos, it ought to fall rather late in Polycrates' reign, after his sojourn abroad. Another report that can be traced back to Aristoxenus expressly says that Pythagoras' time in Egypt coincided with the occupation of the country by Cambyses (30).[144] The Persians invaded in 525; an entry in a Roman

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[143] Strabo is very clear on this point. The same double departure is attested in Diogenes Laertius, *Lives* 8.3, Apuleius, *Florida* 15, Pophryry, *Life of Pythagoras* 9, Iamblichus, *The Pythagorean Life* 11, 19, 28.

[144] Some scholars have argued that the story of Pythagoras' capture by the Persians was a late addition to the account of his Egyptian sojourn, e.g. Wehrli 1967, 50, Zhmud 2012, 88–90. But the report is ascribed to Aristoxenus (PYTHAGORAS 30); and while it is true that Aristoxenus is just one of several authorities cited in that passage, Aristoxenus' further belief that Pythagoras visited 'Zaratas the Chaldean' (Hippolytus, *Refutation of All Heresies* 2.12) entails an interview with Persian sages which can only have taken place after the Persians captured him. The

chronicle from the reign of Tiberius explicitly synchronizes Pythagoras' capture with this event, assigning it to the period 525 to 522 (21). Since Polycrates was killed in 522, Pythagoras' second departure should thus date to 524 or 523. If Pythagoras was 40 years old at the time, then he was born in 563 or 562. Combined with the dating for his death deduced from Alcidamas, this result indicates that Pythagoras lived to be about ninety – which is the lifespan ascribed to him by most Hellenistic authorities (12; cf. 16). The early evidence all hangs together: Pythagoras' life ran from approximately 562 to 472. The influence of this dating can be traced through a variety of Hellenistic and Roman authorities, as we shall see.

Like Aristotle, Aristoxenus also commented on Pythagoras' escape from the violence at Croton, adding a critical circumstantial detail. Recall that in Aristotle's version, Pythagoras foresaw the coming civil strife, shared this knowledge with his allies, then sailed away to Metapontum, alone and unobserved. This story could be read in a positive light, as an example of the protection Pythagoras' divine foresight afforded him – analogous perhaps to the protection Telemachus received from Athena when she sent him out of Ithaca to escape the suitors' plot. But stripped of its prophetic element, the story reflects rather poorly on Pythagoras, who seems to have abandoned his allies. Given the implication of cowardliness, and the positive tone of Aristoxenus' portrayal, it is no surprise to find him apologizing for Pythagoras' absence, calling it, in effect, a case of bad timing. Pythagoras

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Aristoxenian provenance of Hippolytus' text has in turn been questioned because it mentions Pythagoras' injunction against eating beans – Aristoxenus expressly claimed that Pythagoras made no such injunction (Aulus Gellius, *Attic Nights* 4.11; cf. Zhmud, 89). But in the passage the phrase "it is said" distances the speaker from the assertion; Aristoxenus is not endorsing the belief that Pythagoras forbade people to eat beans, he is trying to explain how it arose.

could not be found during the attack, he said, because he had dutifully gone off to Delos to care for his ailing teacher Pherecydes, who was on the brink of death (5.B; cf. PHERECYDES 3). Note that Aristoxenus put a similar positive gloss on Pythagoras' flight from Polycrates' Samos, casting the tyranny as an intolerable humiliation for a man of higher qualities, rather than, say, an evil demanding patriotic resistance (5.A). Combining this report with some information from late sources also yields an estimated date for the violence at Croton. In Apollodorus' chronology Pherecydes was born in 580 BCE, and some held that he died at age 85 (PHERECYDES 9). By this reckoning the year of Pherecydes' death should be 496; hence this is also the year of Pythagoras' supposed trip to Delos, and the violence at Croton. Note that this falls very close to the date for the violence established above, 500 or shortly thereafter.

In his writings on Pythagoras, Dicaearchus offered what looks like a challenge to Aristoxenus. Pherecydes, he asserted, passed away long before the attack, even before Pythagoras left Samos for Italy (6). Furthermore, far from anticipating the violence, he was nearly caught up in it, surviving only because he managed to slip away. After his escape he embarked on a solo journey that took him from Croton to Caulonia to Locri – where the Locrians rejected him as a threat to their system of laws – thence to Tarentum, where he once again met a hostile reception, and finally to Metapontum, the city where he spent the remainder of his life. Note that, as in Aristotle's anecdote, Pythagoras goes on his journey alone and ends up in Metapontum. Dicaearchus' account shares some elements with narratives of the attack on the Pythagoreans in the mid-fifth century, such as the death of his friends, and the narrative of flight. Nevertheless, it differs in several key details: his allies die from street violence, not arson; the number of victims is 40, not 35 or 60; Pythagoras is the only named survivor (Lysis and Archippus are not

mentioned); and the description of his itinerary after his escape is unparalleled.[145] I would contend that in Dicaearchus' account we are dealing with a revised version of the flight story, one designed to cast Pythagoras in a negative light, but also, perhaps, more reflective of genuine traditions.

About a generation after Dicaearchus, the historian Neanthes of Cyzicus composed an account of the violence at Croton which exercised a baleful influence on the later tradition by collapsing the distinction between the unrest which took place during Pythagoras' lifetime and the attack on the school several decades later.[146] Although the summary of Neanthes' narrative which we possess is highly compressed and possibly distorted, it clearly asserts that the Pythagoreans Lysis and Archippus escaped an attack at Croton which took place while Pythagoras was away at Delos caring for Pherecydes (7.B). This detail wreaks havoc on any attempt to reconstruct an objective timeline of events, since it requires us to assume either of two impossibilities: that Pythagoras was still alive ca. 440 BCE, or that Lysis, who served as the tutor of Epaminondas of Thebes ca. 400, was born as early as 520. Despite or perhaps because of its disregard for historical accuracy, Neanthes' account shaped the presentations of Pythagoras' death in the biographies of Diogenes Laertius, Nicomachus, and Porphyry.[147]

Neanthes proves to be more helpful in another fragment which allows us to date the life of one of Pythagoras' children. Somewhere the historian came across a letter purportedly written by Pythagoras' son Telauges in which he reported that Empedocles had died in old age after

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[145] In the 430's Tarentum provided refuge to the survivors of the meeting house attack, while in Dicaearchus' account it turns Pythagoras away.

[146] As Minar 1942, 68, well demonstrates.

[147] *Lives* 8.39; Iamblichus, *The Pythagorean Life* 251; Porphyry, *Life of Pythagoras* 54/5.

falling off a ship (7.A). Although the letter was regarded by Neanthes as a forgery, it has considerable value as a fourth-century document: like the pseudo-Platonic seventh *Letter,* which was composed at about the same time, it should reflect an informed understanding of the relationships among its principals. Now if Telauges survived Empedocles, as the document implied, he must have lived at least a few years after 436 BCE. That he did so is confirmed by his appearance in a Socratic dialogue composed by Aeschines, the *Telauges*, which featured him as a central character along with Hermogenes, Critobulus, and Socrates. Because its dramatic date falls in the 420's, Telauges must have been alive then.[148] If Telauges lived to age 80 or beyond, his name would likely have ended up in the lists of very old men compiled by pseudo-Lucian and Phlegon; so the earliest date for his year of birth is about 505. If we then take 60 to be the oldest age at which one can plausibly father a son, Pythagoras' year of birth cannot be earlier than 565. This argument obviously relies on several hypotheticals; but given the age constraints, if the father-son connection is to remain intact, Pythagoras' birth cannot fall much earlier. A contemporary of Neanthes, the historian Duris of Samos, reported that another son of Pythagoras named Arimnestus had been Democritus' teacher (8.A). Let us assume that the minimum age for being a student is 20, that the maximum age for being a teacher is 70, and that the maximum age for being a father is 60. Since Democritus was born in 460, these figures place Pythagoras' birth no earlier than 570. Thus, Duris' report, like Neanthes', is consistent with our estimated year of birth for Pythagoras ca. 562.

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[148] Our knowledge of this dialogue rests largely on brief descriptions in Athenaeus, *Sophists at Dinner* 220a and Demetrius, *Style* 291. Critobulus' father Crito was born in the 470's BCE; hence, Critobulus could hardly have been a participant in an adult discussion prior to 430. See further Nails 2002, 114–116.

Timaeus of Tauromenium's landmark history of Magna Graecia recorded many valuable details about Pythagoras' early activities at Croton; unfortunately, only two testimonia that can be securely traced to Timaeus are chronologically actionable. The first, as noted above, was his report of a meeting between Pythagoras and Empedocles, which would entail that Pythagoras was still alive in the late 470's BCE (9.A). The second, also noted above, is the detail preserved by Justin that Pythagoras spent 20 years in Croton before leaving from Metapontum (9.B). The Standard Dating has difficulty taking this interval into account, due to its premise that Pythagoras settled in Croton in 532; if Pythagoras spent 20 years in the city, then his departure would date to 513, a good three years before the destruction of Sybaris, which Pythagoras supposedly foretold (17.B). The dating proposed here can easily accommodate this interval, since it holds that Pythagoras left Samos for good no earlier than 523. This means that the earliest possible date for his departure from Croton is about 504. However, Timaeus also had Pythagoras stop in Crete and Sparta before coming to Italy, diversions which would have delayed his arrival.[149] In Timaeus' chronology, then, Pythagoras probably left Croton sometime around 500 – arguably to escape the violence associated with Cleinias' coup – and died at Metapontum in the late 470's.[150] Timaeus' account of the attack on the Pythagoras' companions is, like Neanthes', partly

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[149] See Justin, *Epitome* 20.4.4, and (16), with von Fritz 1940, 38. Valerius Maximus, who also seems to be drawing on Timaeus, adds a trip to Olympia as well (*Memorable Deeds and Sayings* 8.7.ex.2).

[150] Note, by the way, that a twenty-year span would be just enough time for Pythagoras to marry, father a daughter, and see that daughter married, as another fragment of Timaeus (Porphyry, *Life of Pythagoras* 4) suggests happened.

contaminated with details from the later assault, with numerous victims (nearly 60) dying in a fire.[151]

We now move to authorities on Pythagoras' life from the Hellenistic era. Hermippus of Smyrna, a learned disciple of Callimachus, put together a collection of philosophers' lives distinguished by their colorful and macabre details. A story he related about Pythagoras' death had him joining the soldiers of Acragas in their war against Syracuse; when their line collapsed, Pythagoras was cut down while trying to avoid a bean field (10). The story contains some obvious fictions (a superannuated Pythagoras in combat, the reluctance to step on beans), but is connected to a historically datable event, the battle of Acragas, for which Diodorus Siculus provides a precise date: 472 BCE (*Library of History* 11.53). It is striking that the year for Pythagoras' death matches exactly the year derived from the indications in earlier texts. Hermippus is certainly not known as a chronographer, yet the Standard Dating of Plato's life rests on an age derived from his biography.[152] Fantastic as the story may be, its chronological implications line up nicely with the rest of the early tradition, which turns out to be surprisingly consistent.

As we shall see below, the dates 562 and 472 continued to shape calculations of Pythagoras' chronology down to Apollodorus' time and beyond. Yet one piece of early chronological data stands in conflict with this timeline. Its source was a treatise by the great Alexandrian polymath Eratosthenes of Cyrene, who gave an Olympiad dating for Pythagoras in his *Olympic Victors*, a text of fundamental importance for ancient chronographers.[153] Duris of Samos had previously recorded that Pythagoras won a victory in boxing as a youth under unusual

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[151] I will discuss the chronology of the later attack on the Pythagoreans in the next book in this series.

[152] See page 208, and Burkert 1972, 103.

[153] See especially Geus 2002, 323–332, and Christesen 2007, 173–179.

circumstances: after being excluded from the boys' games, he chose to fight with the adults and took down several challengers (8.B). Eratosthenes repeated Duris' claim, adding that Pythagoras was the first Olympic contestant to box using technique, and identifying the games at which he competed: the forty-eighth, held in 588 BCE (11).[154] Eratosthenes' dating would prove enormously influential: it informed the Pythagorean chronologies of Iamblichus (29.A, B, C) and a certain Antilochus (26.B), was known to Favorinus (11), and lay behind the dates for Pythagoras known to Livy (19) and Dionysius of Halicarnassus (18).[155] But it is a strange dating, since it puts Pythagoras about 40 years earlier than we might expect. Scholarship that Eratosthenes must have known about should have discouraged him from making such a radical departure: Duris, Eratosthenes' source, recounted the story of Arimnestus and Democritus, with its implied *terminus post quem* for Pythagoras' birth of about 570. Timaeus, who pioneered the techniques of Olympiad reckoning that Eratosthenes followed, reported that Empedocles met Pythagoras in person. Eratosthenes must have known roughly when both men were alive because he fixed the Olympiad in which Empedocles' grandfather won a victory (EMPEDOCLES 5.B); yet his reported dating of Pythagoras would preclude any meeting between the two philosophers, since the Samian would have been over 120 years old. Hermippus, a contemporary of Eratosthenes and fellow student of Callimachus, put Pythagoras' death in the year we would call 472, as we just saw. Finally, Eratosthenes knew Aristoxenus' writings

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[154] For a thorough discussion of the material from Duris and Eratosthenes, see Mensching 1963, 110–114.

[155] Augustine has Pythagoras being converted from athletics to philosophy (*Epistles* 137.12), following the Eratosthenic tradition as filtered through Varro or Eusebius.

and held them in high regard.[156] Given that Eratosthenes must have known about the prior dating traditions for Pythagoras' life, what are we to make of his apparent decision to ignore them?

The current consensus among scholars is that Eratosthenes happened across another Pythagoras of Samos in a list of boxing victors, one who was linked to the 48th Olympiad, and decided that this documentary evidence justified a rejection of the received tradition about Pythagoras' chronology.[157] An alternative explanation is also possible, however. If the manuscript of Eratosthenes' *Olympic Victors* employed Greek-letter numerals for dates, then the ordinal number known to our late sources, the 48th Olympiad, MH, was only one letter stroke away from NH, the 58th Olympiad, whose games were held in 548 BCE.[158] If a corruption of N to M crept into the text at an early stage in its transmission, the consensus of the later tradition would become intelligible. It would also rescue Eratosthenes' scholarly reputation, since the reconstructed date fits perfectly with the chronology established above. A Pythagoras born in 562 would be 15 years old in the year 548, just under the age cutoff for the boys' event, which was 17.[159] The forty-year correction which the postulated letter stroke makes necessary is of precisely the right magnitude to bring Eratosthenes' original dating into line with the earlier tradition.

There is certainly nothing implausible about Pythagoras being an Olympic athlete: he was an associate of the famous wrestler Milo of

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[156] Eratosthenes paid Aristoxenus the honor of taking over several parts of his harmonic theory virtually unchanged: see Creese 2010, 188–206.

[157] See, e.g., Jacoby 1902, 223.

[158] While hardly probative, it is worth noting that Greek-letter designations of Olympiads appear in three of the ten surviving fragments of Eratosthenes' *Olympionikai*; *POxy* 3 409.104–106, the scholia to Aristophanes' *Wasps* 1191, and PYTHAGORAS 8.B.

[159] For the age threshold see Pausanias, *Tour* 6.14.1.

Croton, and reportedly introduced a new training regimen for athletes.[160] Among Pythagoras' earliest disciples was Astylus of Croton, a famous Olympic victor of the 480's BCE (Iamblichus, *The Pythagorean Life* 267). An Olympic reputation would also explain why Pythagoras met with such a warm welcome at Croton when he first arrived – not the sort of reception an unknown Ionian aristocrat with strange notions about reincarnation would normally receive, but one suited to a famous athlete. Heraclitus' peculiar sobriquet for Pythagoras, κοπίδων ἀρχηγός, can also be brought into play as evidence for his pugilistic background.[161] The rare word κοπίς is an adjective derived from κόπτω, the basic meaning of which is to punch or strike; as a substantive, it should identify a man who is skilled at punching or hitting.[162] Euripides, the only Classical-era author to use the word, applies it to Odysseus in conjunction with three other adjectives that denote a shifty, sweet-talking speaker (*Hecuba* 131); by that point the sense 'someone good at verbal sparring' had taken over for the root meaning of a deft puncher. I would conjecture that Heraclitus chose this rare word precisely for its *double entendre*: Pythagoras was not just a gifted and innovative orator, he was also a skilled boxer, a "leader among punchers"; the noun ἀρχηγός would allude to his innovations in the sport, his being, as Eratosthenes said, "the first to box using technique." Herodotus may also gesture to Pythagoras' physical prowess when he describes him as "not the weakest sophist," using an adjective, ἀσθενής, which primarily denotes possession of physical strength (*Histories* 4.95.2). In short, doubts about Pythagoras' athletic background should not stand in the

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[160] Milo: Strabo, *Geography* 6.1.12; regimen: Heraclides Ponticus, via Porphyry, *Abstinence* 1.26.

[161] Philodemus, *Rhetoric* 1.57 + 62, with scholia to Euripides, *Hecuba* 131. For interpretations of the phrase and its difficult contexts, see Marcovich 1967, 71–73 and Zhmud 2012, 36–38.

[162] Compare the adjective ἴδρις, 'expert', derived from εἴδω.

way of the proposed emendation or the identification of the sage with the athlete – and Eratosthenes' chronographical savvy should encourage us to accept it.

Further support for my reconstruction of the Hellenistic perception of Pythagoras' chronology comes from an odd source – a lost treatise supposedly written by Pythagoras and devoted to the life-extending benefits of squill. This work was composed no later than the 50's BCE, since it was known to Demetrius of Magnesia, and may well have been several decades older.[163] The author of this work asserted that, thanks to his practice of consuming the bulbs of the plant, Pythagoras lived to the ripe old age of 117 (14). The derivation of its very precise and fantastical lifespan is not hard to reconstruct: the author assumed 588 as Pythagoras' year of birth – the mistaken dating of his Olympic victory, here reinterpreted as his birth year – and 472 as his date of death. The existence of this figure thus counts as further evidence that Hellenistic scholars placed his death in the year we would call 472, and confirms that the mistaken report of Eratosthenes' dating had already taken root by the beginning of the 1st century.[164]

In Rome, a tradition going back to the middle of the Republic held that Numa Pompilius, the second king of Rome, had learned his

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[163] See notes on PYTHAGORAS 14.

[164] A pseudonymous letter from Pythagoras to Hieron of Syracuse, perhaps from this same era though impossible to date securely, assumes that Pythagoras was still alive in the 470's BCE (25). A piece of Hellenistic pseudopythagorea supposedly written by the sage himself maintained that Pythagoras came back to the realm of the living every 207 years (Diogenes Laertius, *Lives* 8.14). There is no tidy numerological basis for this figure, but a historical one can be inferred: 207 years after 562 was the year of Alexander the Great's birth, 356. Presumably some Hellenistic scholar seeking to magnify Alexander or his heirs lit upon the conceit that the Macedonian king was Pythagoras reincarnate!

wisdom from Pythagoras.[165] This tradition is not chronologically actionable, since it is unclear how the Romans of that era conceived of Numa's historical dates, but its impact can be discerned on a Greek scholar at Rome whose early dating for Pythagoras may reflect a desire to flatter his patrons. Alexander Polyhistor, a freedman of Sulla, exploited his unusually detailed knowledge of Near Eastern history to argue for a seventh-century date for Pythagoras (13). Picking up on Aristoxenus' claim that Pythagoras visited 'Zaratas' after being captured in Egypt, Alexander took this to mean, not that he had studied with the Persian sage Zoroaster, but that he had visited the Assyrian king Esarhaddon, whose name in Greek assumed such forms as 'Zara' and 'Azaratos'.[166] It is surely no accident that this dating produced a Pythagoras who was active during the 680's and 670's BCE, and thus overlapped in time with Numa, whose reign was eventually dated to ca. 715 to 673.

No sooner had Alexander proposed this rationalization for the Numa-Pythagoras legend than evidence emerged to refute it. By the 50's BCE, knowledge of Eratosthenes' and Apollodorus' chronologies had filtered into the Roman consciousness, and with it, recognition that Pythagoras belonged to what we would call the sixth-century. Livy and Dionysius Halicarnassus rejected the Numa-Pythagoras connection in favor of the (apparently misunderstood) Eratosthenian chronology (18, 19), while Cicero made a case against it by tying Pythagoras' life to the 62nd Olympiad, 532 to 538 (15.A). Cicero's date marked the start of an important new trend: henceforth the 62nd Olympiad would become the most commonly cited Olympiad dating for Pythagoras' mature years. There can be little doubt that this figure *ultimately* derived from Apollodorus, given the timing of its first appearance and its popularity.

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[165] See Thibodeau 2018, 595–600, for further discussion.

[166] Schnabel 1923, 145–147.

Nevertheless, we must bear in mind that Apollodorus did not express his datings in terms of Olympiads, and that his claims reached Cicero and others through intermediaries. In order to reconstruct Apollodorus' original statement, it will be necessary to review the ancient chronographical understanding of Polycrates' reign. The subject is an important one because the Standard Dating of Pythagoras generally places his 40th year in the 62nd Olympiad, on the supposed authority of Apollodorus. As we shall see, this reconstruction is almost certainly mistaken.

Herodotus' account of Polycrates' deeds preserves enough information to determine the precise year for the end of his rule: 522 BCE (*Histories* 3.125). Unfortunately the historian gives no exact clues to date the start of his reign, only vague indications that preclude it being much earlier than 540. For a more precise definition of Polycrates' time in power one must turn to Thucydides, who aligned the tyrant's control of the sea with the reign of Cambyses (*Peloponnesian War* 1.13.6). Interpreted as an exact synchronism, this would place Polycrates' rule in the years 530 to 522. Pseudo-Iamblichus explicitly says that Polycrates and Cambyses overlapped in time (συνεχρόνει 31); Eusebius/Jerome specified the first year of Polycrates' reign, 530, as the time of Pythagoras' "notice" (32.A); and a late epitomator of Eusebius synchronized Pythagoras with Cambyses' invasion of Egypt (33.D). Since it would be entirely in character for Apollodorus to use dating clues found in Herodotus and Thucydides to build his timeline, we can be fairly confident that Apollodorus dated Pythagoras' 'recognition' by synchronizing him with Polycrates. Note then that the Eusebian date 530 for Pythagoras is really a kind of period dating, a shorthand indication of a synchronism with the Samian tyrant, who was in turn synchronized with the Persian king. That is, the year was originally intended to designate the beginning of a period (the reign of Polycrates) during which Pythagoras made an

appearance in the historical record; but the event in question, his departure from Samos, actually took place near the end of the period, in 523, not 530.

Next, let us consider what happened when Apollodorus' year-precise date was converted into an Olympiad format. While Eusebius preserved the exact year 530 BCE, most authorities simply reported a rounded Olympiad. Cicero, Tatian, Clement, and Iamblichus all link Pythagoras to the 62nd Olympiad without any mention of the specific year (15.A, 23, 26.A, C, 29.C). So none of these indications add to what we know about Apollodorus' dating; they are merely translations of his year 530/529 into a rounded Olympiad. Another fact worth noting is that no source identifies the 62nd Olympiad as Pythagoras' acme. The various verbs that do appear – Pythagoras "is found" or "is referred" to this Olympiad – suggest that sources were consulting chronological tables rather than Apollodorus' poem.[167] Jacoby observed that Diodorus' specification of the last year of the 61st Olympiad as the date of Pythagoras' recognition (17.A) was probably due to his using a chronological table in which the first year of the 62nd Olympiad had slipped into the last year of the 61st.[168] As for Apollodorus' original statement, one would expect him (on the principle of *Apollodorus Sciens*) to have followed Aristoxenus and linked Pythagoras' 40th year to his departure from Samos during the last year or two of Polycrates' reign. Perhaps the closest we can get to Apollodorus is an entry from a Roman

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[167] The relevant verbs are ἐγνωρίζετο in Diodorus (17.A); γενομένου in Tatian (23); in Clement, εὑρίσκεται (26.A) and φερομένου (26.C). Chronographer P, Diogenes' source, did speak of Pythagoras' acme but placed it in the 60th Olympiad. An anonymous epitomator of Eusebius (31.E) mentioned Pythagoras' acme but connected it to Cambyses invasion of Egypt ca. 525 BCE, consistent with Aristoxenus' report.

[168] Jacoby 1902, 220.

chronicle composed in the reign of Tiberius which follows the chronological vulgate in its other entries and places Pythagoras' capture by Cambyses between the years 525 and 522 (21).

Standing somewhat at odds with the interpretation presented here is Cicero's claim in the *Republic* that Pythagoras came to Italy during the 62nd Olympiad (15.A); but explaining how this error arose is not hard. Cicero would have been relying here on a Roman source like Nepos for whom the date of Pythagoras' journey to Egypt was of less interest than the year when he reached Italy. It could be that that Nepos ignored Pythagoras' Egyptian sojourn and, in an act of oversimplification, set his voyage to Italy in the 62nd Olympiad. But I think it more likely that Nepos synchronized Pythagoras' arrival in Italy with the reign of Tarquinius Superbus (cf. 15.B), which began in the 62nd Olympiad and ended in 509 BCE. One advantage to this interpretation is that it allows us to account for the scatter in Pythagoras' dates in Roman sources. So, in the process of converting the Pythagoras-Superbus synchronism into a specific year, the Cicero of the *Republic* chose the starting point of his reign (532; 15.A), the Cicero of the *Tusculans* and Solinus chose its end point (509; 15.C, 28), while Pliny chose the wrong Tarquinius (Priscus rather than Superbus) and linked Pythagoras to the 42nd Olympiad, which fell at the start of his reign (22).[169] A second source of confusion is Iamblichus' biography, which follows the same tradition and puts Pythagoras' arrival in Italy in the 62nd Olympiad (29.C). However, as we shall see later, Iamblichus' dating indications are late and artificial combinations, creatively derived from Roman-era data, which tell us more about the perception of Pythagoras' chronology in the 3rd century CE than they do about earlier traditions.[170] Thus the sequence of events

[169] This explanation for Pliny's odd date comes from Jacoby 1902, 220.

[170] The origins of Iamblichus' indications are discussed more fully below, pages 138–140.

that led to the 62nd Olympiad dating can be reconstructed as follows: (i) Apollodorus dated Pythagoras by synchronizing him with Polycrates and/or Cambyses; (ii) in order to convert this synchronism into a precise date, an unknown epitomator (Sosicrates?) reduced the period of Polycrates' reign to its first year, 530; (iii) later Greek chroniclers mentioned Pythagoras under the 62nd Olympiad, the period which contains 530; (iv) a Roman authority, most likely Nepos, took the further step of adding a synchronization with the reign of Tarquinius Superbus. Modern scholars often combine the Roman dating of Pythagoras' arrival in Italy with Aristoxenus' claim (5.A) in order to conclude that Apollodorus put Pythagoras' 40th year in 532. But there is no positive evidence that Apollodorus did any such thing – and the full constellation of data suggests that he did not.

Our next source after Cicero, Diodorus Siculus, had the philosopher making a speech to the Crotonians on the eve of their war of annihilation against Sybaris (17.B), an event precisely dated by Diodorus to 510 BCE (*Library of History* 11.90.3). Given the testimony of Andron, it is certainly credible that Pythagoras was in Croton around this time. But that he made such a speech is highly doubtful; for one, Herodotus' account of the same war makes no mention of Pythagoras or the Pythagoreans (*Histories* 5.44/45); and as Walter Burkert points out, Diodorus' story makes no sense, since Telys demands that the Crotonians hand over the same persons he had just sent into exile.[171] I would suggest that Andron's story about Pythagoras *foretelling* the destruction of Sybaris was later reinterpreted as his *speaking in public* about the coming war – the Greek verb προεῖπε can have both senses. A secularizing move, in other words, it turned Pythagoras the prophet into Pythagoras the wise advisor.

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[171] Burkert 1972, 116n45.

The last two texts which merit careful study date to the early fourth-century CE, and are of interest primarily for the way they reconfigure previous chronological data in the service of new ends. The *Pythagorean Life* by Iamblichus contains a precise but fantastic chronology for the sage that, like its biographical narrative, is elaborated from a few authentic facts (29). Scattered throughout his text are hints indicating the following timeline: Pythagoras left Samos for the first time at age 18. He spent 22 years in Egypt, and 12 years in Babylon before returning home again. Soon thereafter he departed Samos for good, and arrived in Italy during the 62nd Olympiad at age 56. He headed his school in Italy for 39 years, and died just shy of 100. The most obvious fictions in his chronology are the 22- and 12-year back-to-back sojourns in Egypt and Babylon; since Polycrates was tyrant both before and after Pythagoras' study abroad, the absurd implication is that Samos spent 34 years under his control. Some scholars have argued that these dating indications go back to Timaeus or perhaps Apollonius; but their derivative character points to a much later origin.[172] By the first-century CE the existing literature about Pythagoras (excluding Alexander Polyhistor's work) would have presented the following dates for his life – not all mutually consistent, of course, due primarily to the erroneous datum (a):

(a) 588–584 BCE	Pythagoras wins boxing victory as youth.
(b) 562	Pythagoras is born.
(c) 532–528	Pythagoras is noticed.
(d) 522	Released from captivity in Egypt, Pythagoras

[172] Scholars like Kothe, Delatte, Rostagni, and Bertermann argued that Iamblichus' chronology derived from Timaeus, but this assumption creates insoluble problems, as von Fritz 1940, 48–55, demonstrated. It was von Fritz' view that these dates stem from Apollonius, the mysterious biographer of Pythagoras, but there is no solid evidence to support this conjecture.

	returns to Samos, then leaves for Italy; he is 40 years old.
(e) 510	Pythagoras speaks before the Sybarite war.
(f) 472	Pythagoras dies.

Iamblichus' assertation that Pythagoras was 56 years old in the 62nd Olympiad shows that he took over the dates in (a) and (c) but reinterpreted (a) as his year of birth. Leaving Samos at 18 and spending 22 years in Egypt would make Pythagoras 40 when his time in Egypt came to an end; this last phrase matches the descriptor in item (d), but disregards its date. That Pythagoras spent another 12 years in Babylon before leaving Samos for Italy would make him 52 in the 62nd Olympiad rather than 56; this can best be explained if Iamblichus made a second, mistaken calculation of his lifespan which took 584 as a starting point rather than 588. The statement that he ended up in Italy in the 62nd Olympiad points to the influence of the Roman tradition about his life – perhaps reaching Iamblichus via Apollonius, if the latter belonged to a Roman milieu.[173] The curiously exact figure 39 years Iamblichus gives for the length of Pythagoras' tenure as head of his school in Italy is simply the interval from (e) to (f). Finally, adding 39 years to 56 yields a lifespan of 95, which is, as Iamblichus calls it, "close to 100." There are no early dating clues here, then, only creative reinterpretations of data derived from Apollodorus, Diodorus, Apollonius, and others.

The *Theology of Arithmetic* of pseudo-Iamblichus offers a timeline for Pythagoras' life that mixes well-grounded historical fact with numerical speculation (30). The two synchronisms it spells out are historically valid. The first brings together Anacreon, Polycrates,

[173] Staab 2007, building on the arguments of Gorman 1985, makes a persuasive argument that this Iamblichus' Apollonius is Apollonius the son of Molon – an acquaintance of Cicero and Caesar.

Xenophanes, Pythagoras, and the reduction of Ionia by Harpagus; this is a rough period dating, since in Eusebius/Jerome, Harpagus' invasion is dated to 547, Xenophanes to 541, and Anacreon to 536, while Polycrates receives his first mention in 533. The second synchronism links Polycrates, Cambyses' invasion of Egypt, and Pythagoras' capture; it should date to around 525, the year of the invasion. In contrast to these synchronisms, the numerological argument it makes is highly problematic. It starts from the straightforward premise that Pythagoras' rebirths happen once every 216 years. (The passage falls in a discussion of the numerology of 6; $6^3 = 216$.) Next it claims that the soul of Pythagoras was incarnated as the warrior Euphorbus during the Trojan War and that, two incarnations or 432 years later, it was reborn as the philosopher, who lived to be 82 and thus died 514 years after the sack of Troy. Problems arise when one attempts to convert these intervals into dates. If one counts back in time 514 years from dates of the synchronisms, 545 or 525, the results fall far short of the generally accepted Eratosthenian date for the fall of Troy, 1184/3.[174] Conversely, counting off 514 years from the Trojan epoch gives 670 – a date far too early to correspond to any point in Pythagoras' life. Clearly something has gone wrong here. Wehrli proposed that the author made an error in his reconstruction of the numerical argument. The original idea, he suggests, was that Euphorbus died in the prime of his life in 1184/3, and that *three* cycles of 216 years later, Pythagoras was in *his* prime.[175] If one counts 648 years from 1184 the result is 537, a date which falls in the middle of the first synchronism the author describes. Three cycles of metempsychosis also separate Pythagoras' lifetime from the Trojan era in a passage from Hippolytus (*Refutation* 1.2.10–12) which shares certain

[174] 514 + 545 = 1049; 514 + 525 = 1029.
[175] Wehrli 1967, 50.

features with pseudo-Iamblichus' text.[176] Wehrli's explanation is surely right then. Still unclear is where the statement that Pythagoras lived to age 82 came from. The figure may have been determined by retrojecting Plato's lifespan – 82 years, according to late sources – onto the sage whose heir Plato was thought to be.[177] Alternatively, some scholar may have linked Pythagoras' death to the epochal year of Xerxes' defeat, 480. Heraclides Lembos, in his epitome of Sotion's *Successions*, wrote that Pythagoras died at age 80, in accordance with Pythagoras' own scheme for human lifespans (12) – a figure which *might* be a rounded version of the 82-year lifespan. In any event, this was a minority opinion, since the most authoritative figure for his age at death was 90 years. According to Diogenes, most sources assumed this figure (12); it was known to Philodemus (16), and probably goes back to an early authority such as Aristotle, Aristoxenus, or Timaeus.

In chapter one a case was made for the existence of what I call the 'Xenophanes gap': an error, usually of 15 years, that attaches to several dating indications for philosophers around the middle of the sixth-century BCE. In the case of Pythagoras this error would result in a birth date for the sage of 576 rather than 562; as it happens, four late texts show the influence of such a date. If Pythagoras was born in 576, his 40th year would fall in 537 rather than 522, which is precisely where the arithmetic in pseudo-Iamblichus places it (30), according to Wehrli's reconstruction. An anonymous biography of Pythagoras preserved by Photius gives his lifespan as 104 years (33), which is simply the interval from 576 to his Hellenistic date of decease, 472 (here reckoned as 26 Olympiads of 4 years each instead of being counted inclusively). Syncellus has Pythagoras winning his boxing victory in the 51st

[176] To wit, comments on the relationship between cube numbers and generation, and the citation of Aristoxenus as a source.

[177] See pages 208.

Olympiad, which began in 576 (32.B); a year of birth has been misinterpreted as a year of recognition in a manner that should now be familiar. Finally, an entry from Eusebius preserved only in the *Chronicon Paschale* moves what looks like the year of Pythagoras' association with Pherecydes from 541 to 555 (31.F, G). Thus, although no surviving text expressly places Pythagoras' birth in the year 576, the hypothesis that some late chronographer calculated Pythagoras' birth year with a 'Xenophanes gap' would help to explain four otherwise mysterious dating claims.

Eusebius/Jerome offers a year of death for Pythagoras, 497/6, which bears no obvious relationship to any of the data we have previously looked at (31.B). One possible derivation for this is that Eusebius or his source interpreted 588 as Pythagoras' year of birth (just as Iamblichus did), then assumed a 90-year lifespan. However, strictly speaking this should yield 499 for his year of death – the two-year discrepancy does not inspire confidence. Another explanation based on a formatting error may thus be preferable. In the text of Jerome, the entry for Pythagoras' death falls immediately after a multi-person synchronism of Hellanicus, Anaxagoras, Heraclitus, and Democritus. It was shown earlier that this synchronism is best interpreted as a period dating to the period of the Persian Conflict, ca. 500 to 460.[178] The notice for Pythagoras' death falls in the line that immediately follows this entry and is separated from it by a small punctuation mark. Since Pythagoras' death also took place during τὰ Περσικά, the entry would fit perfectly with the multi-person synchronism. I would conjecture that the punctuation mark was added by mistake, by Eusebius or his scribe, and that originally Pythagoras' death was listed along with the entries for the other savants, so as to

[178] See chapter one, pages 64.

place it in the long stretch of time that included the Ionian revolt and the Persian Wars, and ended with the battle of the Eurymedon.

Finally, Syncellus gives two additional figures for Pythagoras' lifespan, 75 and 95 years (32.C). The latter number is simply the lifespan implied by Iamblichus' biography: 56 years in Ionia + 39 years in Italy = 95 years total. The 75-year tally was derived by combining Eusebius' year for Pythagoras' death, 497 BCE, with 571 as his year of birth – the year which is implied if Olympiad 62.1, or 532, is interpreted as his acme. Syncellus' two numbers thus have no value as witnesses to lost traditions; they merely restate data given by Iamblichus and Eusebius.

We are now well placed to compare the merits of the Standard Dating, ca. 570 to ca. 495 BCE, to the one proposed here.[179] The former begins by placing Pythagoras' 40th year in 532. This date falls two years before the start of Polycrates' reign (530) as deduced from Thucydides' synchronism. It also sends Pythagoras to Italy in that year, which has the effect of making his presence in Egypt at the time of Cambyses' invasion impossible. This chronology has often led scholars to discount reports of Pythagoras' voyage to Egypt; however, an Egyptian sojourn is vouched for by Aristoxenus, Isocrates (*Busiris* 29), and, it would seem, Timaeus (Justin, *Epitome* 20.4.3).[180] It is not his visit that should be doubted, then, but the assumption that Pythagoras left Samos for Italy so early. The Standard Dating goes on to set Pythagoras' year of death in 497 – despite the fact that there is no evidence for this dating older than the entry in Eusebius, itself the product of a formatting error. The claim that Pythagoras lived to age 75 likewise rests on nothing more than a notice

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[179] For the sources of the Standard Dating, see note 139 above.

[180] See Zhmud 2012, 83–91, for a detailed review, and attempted demolition, of the evidence. There is enough early testimony that I do not think Pythagoras' journey to Egypt can be chalked up to a Hellenistic source's orientalist fantasy. What he actually learned from such a visit is, of course, a separate question.

in a very late source, Syncellus, who was merely making a deduction from information he found in Eusebius. The Standard Dating is, in short, a somewhat arbitrary combination of data from late sources which conflicts with the evidence from most of our Classical and Hellenistic authorities.

The dating proposed here rests on much more solid foundations. In addition to harmonizing clues found in Alcidamas, Aristoxenus, Timaeus, and Hermippus, it makes sense of the most ancient figure for Pythagoras' lifespan and several otherwise inexplicable lifespans found in Hellenistic and Roman sources. It also lays the groundwork for an emendation that can eliminate the seeming scandal of Eratosthenes' Olympiad dating. Of its various pieces it seems to me the most secure are the claims that Pythagoras was 40 years old in 523 when he left Samos for good; that he arrived in Croton in the early 510's; moved from Croton to Metapontum shortly after 500; and died in 472. If he was also a young Olympic victor in 548, a simple scribal error would explain why the Eratosthenian date was later reported as 588 instead of 548.

Postponing Pythagoras' death from ca. 495 BCE to 472 may seem at first glance like an insignificant change, if one assumes that he passed his decades in Metapontum in quiet retirement. Yet the truth is quite the reverse. In a future volume in this series I will show that Pythagoras was busy throughout the 480's and 470's as a holy man, oracle, and advisor, and provided the catalyst for some of the most visionary works in early Greek literature.

Estimated objective timeline:

ca. 562 BCE:	born
548:	Olympic victory?
520's:	visits Egypt; leaves Samos for good

after 520:	known to Xenophanes and Heraclitus
around 520:	arrives in Croton
soon after 500:	leaves Croton for Metapontum
late 470's:	encounters Empedocles
472:	death

HERACLITUS OF EPHESUS

1. Heraclitus — 5th century BCE
via Diogenes Laertius, *Lives* 9.1
"Learning many different things does not teach sense: for otherwise it would have taught Hesiod and Pythagoras, along with Xenophanes and Hecataeus."

2. Aristotle — 4th century
via Apollodorus, *Chronicle*, via Diogenes Laertius, *Lives* 8.52
"for Aristotle says [Empedocles], as well as Heraclitus, was sixty years old when he died."[181]

3. Apollodorus, *Chronicle* — 2nd century
via Diogenes Laertius, *Lives* 8.52
See (2).

[181] I translate the manuscript reading here. There have been doubts about this text, with some scholars emending it to read "Aristotle, as well as Heraclides, says that he died at age sixty." (See Dorandi 2013 ad loc. for references). But there is nothing wrong with the Greek, the claim is supported by *Lives* 9.3 (8), and the emendation conflicts with Apollodorus' economical style: it would have pointless to cite a second authority for Empedocles' age when he died; by contrast, the mention of a second philosopher who died at sixty is edifying.

4. anonymous epistolographer Hellenistic?
via Diogenes Laertius, *Lives* 9.13
"... King Darius son of Hystaspes wants to be part of your audience and your Hellenic form of education. Come at once into my sight and to my royal domicile..."

5. Strabo, *Geography* 14.1.25 1st century CE
"Noteworthy individuals born in this city include the following ancients: Heraclitus so-called the Obscure, and Hermodorus, about whom the former says, 'The Ephesians deserve to hang, children and all, for expelling Hermodorus, the most benefical of them all, saying, let us not have any benefactors, and if there is one, he should live elsewhere, with other people.' This man is believed to have written some of the Romans' laws."

6. *Tabula Capitolina* (*IG* XIV.1297) 2.30–32 1st century
"[---] years since Socrates the philosopher and Heraclitus of Ephesus and Anaxagoras and Parmenides and Zeno."
ca. 456 BCE (?); see ZENO 5, below

7. Clement of Alexandria, *Stromata* 1.65.4 2nd century
"Heraclitus the son of Blyson (sic) persuaded the tyrant Melancomas to put aside his power. He scoffed at an invitation from king Darius to come visit Persia."

8. Diogenes Laertius, *Lives* 9.1, 3 3rd century
"[Heraclitus] was in his prime during the 69th Olympiad... and died at age 60."
69th Olympiad: 504–500 BCE

9. Eusebius, *Chronicle* 4th century

A. via Jerome, *Chronicle* 107e

"Olympiad 70.1: the historian Hellanicus, the philosopher Democritus, Heraclitus nicknamed the Obscure, and Anaxagoras the natural philosopher are considered famous."

Olympiad 70.1: 500/499 BCE

B. via Jerome, *Chronicle* 111e

"Olympiad 80.1: Heraclitus is famous.

Olympiad 80.1: 460/59 BCE

C. via Jerome, *Chronicle* 111i

"Olympiad 81.2: Zeno and Heraclitus the Obscure are noticed."

Olympiad 81.2: 455/4 BCE

D. via *Chronicon Paschale* 274.4

"Olympiad 67.1: the historian Hellanicus, the philosopher Democritus, Heraclitus the Obscure, and the natural philosopher Anaxagoras were noticed."

Olympiad 67.1: 512/11 BCE[182]

10. *Suda* 'Herakleitos' (*eta*-472) 10th century

"[Heraclitus] was alive in the 69th Olympiad, under the reign of Darius son of Hystaspes."

69th Olympiad: 504–500 BCE

Heraclitus' chronology is as hard to pin down as his philosophical doctrine; the only part which we can date with any confidence are the

[182] This entry falls 16 years after the assassination of Hipparchus, which was dated to 520/19 BCE by Eusebius/Jerome. But given its wording, it clearly corresponds to Jerome's notice for 500/499.

years of his prime.[183] His familiarity with the teachings and lore of Xenophanes, Pythagoras, and Hecataeus suggests that his period of philosophical engagement fell no earlier than 510 BCE (1). A tradition of uncertain origin held that he turned down an offer from the Persian king Darius to visit him at his court – hence, that he was active during his reign (4, 7; cf. 10). The Ephesian tyrant Melancomas whom Heraclitus supposedly persuaded to leave office is not elsewhere attested (7), but *if* he is identical to the Comas who expelled the poet Hipponax from Ephesus, then we may date him to the 530's.[184] Heraclitus shares certain turns of phrase with Parmenides, but unfortunately they cannot count as independent evidence for his chronology since it is not obvious who is borrowing from whom.[185] These temporal clues would suggest an early date, between the years 510 and, say, 490. Against these stands a report in Strabo that Hermodorus, an acquaintance of Heraclitus, assisted the Romans in drawing up their laws after he was exiled from Ephesus – presumably a reference to the first effort to codify the Twelve Tables in 450 (5); if this were the case, Heraclitus' floruit would fall within a decade or so of that year. However, Hermodorus is such a common name in Greek that even if a man by that name did assist the Romans, it is hard to imagine what kind of evidence ancient scholars could have had to securely identify him with Heraclitus' friend. Some distinguished scholars have preferred a late dating for Heraclitus.[186] The fact that

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[183] Kirk 1954, 1–3, offers an excellent discussion of the evidence; likewise, Mouraviev 2000, 577/8.

[184] For this Comas, see the *Suda*, 'Hipponax' (*iota*-588), together with Pliny the Elder, *Natural History* 36.11, who allows us to date the incident.

[185] Graham 2006, 148–155, has recently made a strong case that Parmenides was responding to Heraclitus; however, Osborne 2006, 234–237 shows that a reading of the shared phrases which makes Parmenides the originator can also make sense.

[186] Reinhardt 1916, Osborne 2006, 230–237.

Heraclitus names so many of his antagonists yet fails to mention figures like Parmenides or Anaximander strikes me as a good argument from silence to support the majority view. Thus I follow the Standard Dating, which has his prime years falling in the last decade of the sixth-century or first decade of the fifth.

The Olympiad datings of Heraclitus are transmitted in two versions separated by about 40 years; they clearly correspond to the two alternatives just laid out. Diogenes and the *Suda* maintain that Heraclitus was in his prime in the 69th Olympiad, 504–500 BCE (8, 10); since this quadrennium contains the middle year of Darius' reign, 504, it is likely that the Persian connection furnished the basis for this date, and that what we have here is a period dating.[187] The original synchronism was probably a statement to the effect that Heraclitus was active in the time of Darius, similar to the one we encounter in the *Suda* (10). Diels and Jacoby regarded this as the Apollodoran dating, and while this may well be right, the language of Diogenes clearly indicates that his proximate source was Chronographer P, who is an unreliable intermediary.[188] Jerome mentions Heraclitus along with Hellanicus, Democritus, and Anaxagoras as having achieved prominence in the 70th Olympiad (9.A); the rationale for this synchronism, a period dating linking Heraclitus to

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[187] Diels 1876, 34, and Jacoby 1902, 288, recognized that this particular figure was simply the midpoint of Darius' reign.

[188] Stokes 1971, 110, forcefully argued that the Heraclitus-Darius synchronism was a late scholarly confabulation based on the Apollodoran floruit, and that Apollodorus' date was in turn determined by placing Heraclitus forty years later than his putative teacher Xenophanes. There are two significant problems with this argument. The Heraclitus-Xenophanes relationship is only attested by one source (Diogenes Laertius, *Lives* 9.5), while the authorities for the earlier date and the Darius synchronism are more diverse and numerous. In addition, the interval between Xenophanes' floruit and Heraclitus' is nine Olympiads (60th to the 69th), not ten as Stokes maintains.

the era of the Persian Wars, was explained in the previous chapter.[189] Jerome's chronicle offers two additional dates of recognition for Heraclitus in 460 and 456 (9.B, C).[190] Both are in close proximity to the entry for the Twelve Tables (452) and are likely founded on the putative connection between Heraclitus, Hermodorus, and the Romans.

Apollodorus, citing Aristotle as his authority, reported that Heraclitus died at age 60 (2, 3). Unfortunately we cannot tell where in Darius' long reign Heraclitus' floruit fell, so this interval cannot be used to narrow down the dates of his birth and death.

Estimated objective chronology:

522 to 486 BCE:	interaction with Darius (?)
after 510:	acquainted with Pythagoras, Xenophanes, Hecataeus

PARMENIDES OF ELEA

1. Alcidamas of Elaea, *Physics* 4th century BCE
via Diogenes Laertius, *Lives* 8.56

"Alcidamas in his *Physics* says that Zeno and Empedocles both heard Parmenides teach at around the same time."

2. Plato, *Parmenides* 127a 4th century

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[189] See page 67.

[190] Jacoby 1902, 230, thought that there was some connection between these dates and the tradition represented in Hippolytus and Strabo that Heraclitus was a Pythagorean; while there clearly was such a tradition (see also Plotinus, *Enneads* 5.1.9), it could not have furnished any actionable chronological data.

"According to Antiphon, Pythodorus said that Zeno and Parmenides once attended the Greater Panathenaea. Parmenides was a very old man at that point, his hair very white, but he had a distinguished appearance, and was around sixty-five years old. Zeno was then close to forty... and Socrates was very young at the time."
cf. *Sophist* 217c, *Theaetetus* 183e

3. Aristotle, *Metaphysics* 1.5, 986b21 4th century
"Xenophanes was the first of these men to make things One (for Parmenides is said to have been his student)."

4. Theophrastus 4th century
A. via Simplicius, *On Aristotle's Physics* 22.27
"Theophrastus says that Xenophanes of Colophon, the teacher of Parmenides..."
B. via Simplicius, *On Aristotle's Physics* 25.19
"Empedocles of Acragas was born not long after Anaxagoras. He emulated Parmenides and was close to him."

5. Sotion, *Successions* 2nd century
via Diogenes Laertius, *Lives* 9.21
"Although Parmenides heard Xenophanes teach he did not follow him. Instead he partnered with Ameinias the son of Diochartas, as Sotion says, who was a Pythagorean and a poor yet noble man. He preferred to follow him, and after his death dedicated a hero-shrine to him – Parmenides was from a prominent and wealthy family. It was Ameinias rather than Xenophanes who inspired his silence."

6. *Tabula Capitolina* (*IG* 14.1297) 2.30–32 1st century CE

"[---] years since Socrates the philosopher and Heraclitus of Ephesus and Anaxagoras and Parmenides and Zeno [sc. were alive]."
ca. 456 BCE (?); see ZENO 5, below

7. Diogenes Laertius, *Lives* 9.23 — 3rd century
"[Parmenides] was in his prime during the 69th Olympiad"
69th Olympiad: 504–500 BCE

8. Eusebius, *Chronicle* — 4th century
A. via Jerome, *Chronicle* 111h
"Olympiad 81.1: Empedocles and Parmenides the natural philosophers are considered very well known."
Olympiad 81.1: 456/5 BCE
B. via Jerome, *Chronicle* 114d
"Olympiad 86.1: Democritus of Abdera, Empedocles, Hippocrates the physician, Gorgias, Hippias, Prodicus, Zeno, and Parmenides the philosophers are considered prominent."
Olympiad 86.1: 436/5 BCE

C. via Cyril of Alexandria, *Against Julian* 521b
"They say that in the 86th Olympiad Democritus of Abdera, Empedocles, Hippocrates, Prodicus, Zeno and Parmenides were all alive."
86th Olympiad: 436–432 BCE

D. via *Chronicon Paschale* 306.1
"Olympiad 80.1: the natural philosophers Empedocles and Parmenides were noticed."
Olympiad 80.1: 460/59 BCE[191]

[191] This entry in the *Chronicon* clearly corresponds to 8.A and is only 4 years early relative to Eusebius/Jerome.

Five pieces of information serve to anchor or delimit Parmenides' lifespan.[192] First is his status as a citizen of Elea: since Parmenides must have been born after the city was founded, and the foundation was in 540 BCE, Parmenides' year of birth should be later than 535 or so.

The succession-writer Sotion maintained that Parmenides was influenced early in his career by an ascetic named Ameinias, who was a follower of Pythagoras (5).[193] Since there cannot have been many Pythagorean followers in Italy prior to 510 BCE, Ameinias' mentorship must have begun some time later. Parmenides' discipleship suggests an encounter that happened when he was a young man, say in his twenties. Together these assumptions entail that Parmenides was born after 530.

Aristotle and Theophrastus referred to Parmenides as a student of Xenophanes (3, 4.A). This again places his life after 530 BCE, and, more helpfully, implies that he was not born after 500 – any later, and he would be too young to benefit from Xenophanes' instruction before the latter's death.

An additional *terminus ante quem* for his birth can be derived from reports that Empedocles was Parmenides' disciple (1, 4.B). This would probably make Parmenides older than Empedocles by a few years – at least a decade, let's say. Since Empedocles was born around 496 BCE, Parmenides' birth should fall before 505.

Finally, in the *Parmenides* Plato represents the philosopher as visiting Athens, age 65, at a time when Socrates was still very young, perhaps under 20 (2). Since Socrates was born in 469 BCE, the visit would date

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[192] Recent reconstructions of Parmenides' chronology mostly agree on his dates; see Tarán 1965, 1-5, for a representative discussion.

[193] The ultimate source for Sotion's report must have been a monument of some kind with an inscription identifying Parmenides as the benefactor and Ameinias, the dedicatee, as a "poor but noble man."

to 454 or 450.[194] This would give us a range for Parmenides' birth of 520–515. It also entails that his death occurred some time after 450.

We thus have a broad range for Parmenides' birth of 530 to 505 BCE and a narrow dating, which depends entirely on Plato, of 520–515. Since the theory of forms ascribed to the young Socrates in the dialogue is anachronistic, some scholars have dismissed its chronological indications as of little worth.[195] But the skeptical arguments do not get much purchase, I think. For one, the anachronistic character of its philosophical discourse need not vitiate the details of its historical setting. One can easily bracket out Socrates' particular contributions to the dialogue as fiction while leaving the chronological and historical indications intact; this is, after all, standard procedure when scholars attempt to date Plato's Socratic dramas or Xenophon's. To the extent the dialogues are believable it is due to the broad accuracy of the details in the historical frames; the settings lend the conversations credibility, not the other way around. Pythodorus and Antiphon, the men credited as sources for the *Parmenides*' conversation, were well-known public figures, and other sources place Zeno in Athens at this time.[196] We may thus accept the evidence of Plato's dialogue and place Parmenides' birth within a few years of 515 and his death some time after 450. The earliest unmistakeable signs of his influence on younger thinkers like Anaximenes and Anaxagoras date to the 460's. However, Empedocles and Zeno were studying with him in the early 470's, and Zeno reportedly defended Parmenides against his critics while he was still in

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[194] Mansfeld 1990, 67, observes that it could only fall in the years when the Panathenaea was held – say, 458/7, 454/3, 450/49, or 446/5.

[195] See in particular Zeller 1881, 581-2, and Mansfeld 1990, 64–68.

[196] For Pythodorus and Antiphon, see Nails 2002, 31 and 259. Zeno is said to have shared his wisdom with Pericles (Plutarch, *Pericles* 4.5, 5.4), and been paid by Callias for instruction (Plato(?), *First Alcibiades* 19a3).

his twenties, or around 470 (Plato, *Parmenides* 128e); hence his poem was probably made public close to 480.

The Olympiad datings for Parmenides' life come to us in three different varities. One date in Eusebius fits the lifetime reconstructed above from the clues in Plato: item 8.A, which places his time of fame in the period 456 to 452 BCE (cf. 6). Note that in this case Parmenides' date of recognition is tied to his Athenian visit at age 65, not his prime at age 40. By the principle of *Apollodorus Sciens*, I consider this entry to reflect the dating of Apollodorus; Jacoby' lumping of this entry together with other "useless and superficial synchronisms" is unmerited.[197] A Roman inscription from the age of Tiberius has an entry which synchronizes Parmenides with Zeno, Socrates, Anaxagoras, and Heraclitus and a year which is unfortunately now lost (6). This almost certainly represents an early version of a synchronism which turns up again in Eusebius, but this time divided into two consecutive entries, one for Empedocles and Parmenides (8.A, 456), the other for Zeno and Heraclitus (ZENO 5.A, 455). The presence of Anaxagoras' name in the inscription confirms that the intended year was ca. 456 (cf. ANAXAGORAS 6); the conjunction of Socrates, Zeno, and Parmenides all but proves that this synchronism was motivated by Plato's text. This is such an early document that it ought to reflect Apollodoran data; and as such it indicates that Apollodorus linked Parmenides and Zeno to the year 456.

Eusebius assigns Parmenides a second period of recognition in 436 to 432 BCE along with seven other individuals: Democritus, Empedocles, Hippocrates, Gorgias, Hippias, Prodicus, and Zeno (8.B). It is obviously not the case that all eight of these men were exactly 40 years old in the period 436 to 432; nor should we imagine that any ancient scholar held

[197] Jacoby 1902, 233.

such a view. As I argued in chapter one, this is probably a period dating; that is, a numerical translation of a claim made by an earlier chronographer that all eight of these individuals were active just before the outbreak of the Peloponnesian War. There is no sign that the Hellenistic tradition preserved a year of death or a lifespan for Parmenides.

Diogenes Laertius places Parmenides' acme in the 69th Olympiad, 504 to 500 BCE (7). This represents a 20-to-24 year difference from the dates one might expect to find based on early sources, especially Plato. Diels and Jacoby were both of the view that this text conveyed Apollodorus' dating indication. To explain how it arose, Diels argued that Apollodorus found Plato's claims about a homoerotic relationship between Parmenides and Zeno scandalous; in order to eliminate the scandal, he preferred instead to synchronize Parmenides with Heraclitus, both of whom were considered students of Xenophanes.[198] The motive Diels ascribes to Apollodorus has a suspiciously Victorian coloring to it, and it is not clear to me exactly how increasing the age gap between Parmenides and Zeno would serve to disprove a homoerotic relationship. Jacoby, who was also skeptical of Diels' reconstruction, thought that Apollodorus placed Parmenides' birth in the foundation year of his native city, Elea, which also happens to be Xenophanes' floruit.[199] However, this would represent an unusual deployment of the 40-year floruit rule, which was normally used to derive birth years from floruits, not floruits from birth years. Furthermore, this report in Diogenes derives from Chronographer P, whose dates stand at some distance from Apollodorus' original text. It is hard to be sure what is going on here, but it could be that it represents a period dating, i.e. the remnant of a claim that Parmenides was alive during the reign of Darius (522 to 486),

[198] Diels 1876, 35.

[199] Jacoby 1902, 232.

with the midpoint of the period standing in for the whole. Heraclitus was assigned the same acme date by Chronographer P, and probably for the same reason.[200]

Parmenides Timeline:

around 520 BCE:	born
510 to 490:	mentored by the Pythagorean Ameinias
510 to 490:	acquainted with Xenophanes
shortly after 480:	Zeno and Empedocles hear his teaching
shortly after 455:	visits Athens with Zeno

ZENO OF ELEA

1. Alcidamas of Elaea, *Physics* 4th century BCE
via Diogenes Laertius, *Lives* 8.56
"Alcidamas in his *Physics* says that Zeno and Empedocles both heard Parmenides teach at the same time, and later went their own way, Zeno to practice philosophy on his own, Empedocles to hear Anaxagoras and Pythagoras teach."

2. Plato, *Parmenides* 127a 4th century
"According to Antiphon, Pythodorus said that Zeno and Parmenides once attended the Greater Panathenaea. Parmenides was a very old man at that point, his hair very white, but he had a distinguished appearance, and was around sixty-five years old. Zeno was then close to forty, tall and attractive to look at, and people said he was Parmenides' boyfriend... Socrates and a group of other men came there, wishing to hear from

[200] See page 149.

Zeno's treatise, since this was the first time those men had taken it to Athens; and Socrates was very young at the time."

3. *Tabula Capitolina* (*IG* XIV.1297) 2.30 1st century CE
"[---] years since Socrates the philosopher and Heraclitus of Ephesus and Anaxagoras and Parmenides and Zeno."
ca. 456 BCE (?)

4. Diogenes of Laertius, *Lives* 9.29 3rd century
"[Zeno] was in his prime in the ninth (sic) Olympiad."

5. Eusebius, *Chronicle* 4th century
A. via Jerome, *Chronicle* 111[i]
"Olympiad 81.2: Zeno and Heraclitus the Obscure are noticed."
Olympiad 81.2: 455/4 BCE
B. via Jerome, *Chronicle* 114[d]
"Olympiad 86.1: Democritus of Abdera, Empedocles, Hippocrates the physician, Gorgias, Hippias, Prodicus, Zeno, and Parmenides the philosophers are considered prominent."
Olympiad 86.1: 436 BCE

C. via Cyril of Alexandria, *Against Julian* 521b
"They say that in the 86th Olympiad Democritus of Abdera, Empedocles, Hippocrates, Prodicus, Zeno and Parmenides were all alive."
86th Olympiad: 436–432 BCE

6. anonymous, *Life of Ptolemy* 95.12–16 3rd century (?)
"[Oenopides] was noticed at the end of the Peloponnesian War, at the same time as the orator Gorgias was alive, and Zeno of Elea, and, some say, the historian Herodotus of Halicarnassus."

7. the *Suda* 'Zeno' (*zeta*-77) 10th century
"Zeno, son of Teleutagoras, of Elea; a philosopher, one of those who were close in time to Pythagoras and Democritus; for he was alive in the 78th Olympiad."
78th Olympiad: 468–464 BCE

8. al-Sahrazuri, *The Pleasure Place of Spirits etc.* 32.40 12th century
"He died at the age of seventy-eight years."

Zeno was widely regarded as a student of Parmenides (1, 2, etc.). One of the earliest and most valuable indications of Zeno's chronology comes from the *Parmenides*, where Zeno is described as being "close to 40" at a time when Socrates was still "very young" (2). This phrase should be taken to mean that Zeno was just shy of 40 between 455 and 450 BCE, and thus was born between 495 and 490. He began studying with Parmenides while still a teenager, becoming his lover; and as a young man, i.e. in his twenties, composed a treatise defending Parmenides' ideas which was stolen or plagiarized (*Parmenides* 128d); Zeno's mature works appears to have been completed a few years before his visit to Athens. He was allegedly put to death by a tyrant of Elea named Nearchus (Diodorus Siculus, *Library of History* 10.18.2-6), but because no independent evidence exists for the time of his reign, we cannot use this anecdote to date his death.[201]

The influence of the passage from the *Parmenides* can traced through the later witnesses for Zeno's life. One entry in Eusebius dates Zeno's prime to 455/4 BCE (5.A), and an inscribed chronicle from Rome

[201] There is little disagreement among scholars about the objective dating of Zeno; see e.g. Köhler 2014, 15–17.

associates him with the year 456 (3).[202] The *Life of Ptolemy* links the floruits of Oenopides, Gorgias, Herodotus, and Zeno to the "end of the Peloponnesian War"(6). The reference here must be to the Thirty Years' Peace, the treaty between Athens and Sparta that was agreed to in 446/5. Jerome dates this to 445/4 (113[b]) and places Herodotus' public recognition at Athens in the same year (113[c]), which points to a kinship with the text of (6). Taken literally, this puts Zeno's acme about a decade later than we would expect from the evidence of Plato and Jerome. However, the dating in (6), with its multiple names, is clearly a period dating, which should be understood as linking Zeno's acme to a span of time rather than a specific year.

The claim in the *Suda* that Zeno was alive (ἦν) in the years 468 to 464 BCE, the 78th Olympiad (7), is strictly speaking true; but because the date is 12-to-20 years too early to be a floruit, the origin of the specific figure is not immediately clear. An important clue is provided by the accompanying phrase "he was one of those who were close in time to Pythagoras and Democritus." Eusebius' *Preparation for the Gospel* (10.9, 487b) contains an echo of this expression: "It was yesterday and the day before, after those men in the 50th Olympiad, that people like Pythagoras and Democritus and later philosophers won their reputations, approximately 700 years after the Trojan Era." The inclusive phrase seems to be a way of designating the period that began with Pythagoras' career and ended with Democritus', two well known figures whose lives bookended the era of the Presocratics. The Olympiad specified by the *Suda* falls immediately after the one in which Pythagoras died (472–468), and is one quadrennium prior to the one in which Democritus was born (460–456). It thus likely represents a very loose period dating – a way of indicating that Zeno was younger than Pythagoras but older than

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[202] Cf. the discussion on pages 155/6.

Democritus. As for the report in an Arabic source that Zeno lived to age 78, this seems like a confused interpretation of the 78th Olympiad mentioned in (7). The rationale behind the Eusebian entry (5.B, C) that synchronizes Zeno with seven other intellectuals in the period 436 to 432 was detailed above.[203]

The acme date in Diogenes' biography of Zeno is corrupt, placing him in the 9th Olympiad (4). One of Diogenes' earliest editors, Tommaso Aldobrandini (d. 1572), proposed emending the text to read the 79th Olympiad (464–460). Diels claimed that this dating was Apollodorus'. In his view the scholar rejected the evidence of Plato's dialogue in order to implement a numerical scheme that would align Zeno's birth year with Parmenides' floruit.[204] But for all we know the number in Diogenes' original text could have been the 81st Olympiad, matching Eusebius' date, or the 78th Olympiad, the *Suda*'s figure, or even the 69th Olympiad, Diogenes' acme dating for both Parmenides and Heraclitus. Because the original figure has been lost, and because it came from an unreliable source, Chronographer P, the text is a rather thin reed on which to rest a bold reconstruction of Apollodorus' original.[205]

Estimated objective dates:

495 to 490 BCE:	born
470's:	studies with Parmenides and composes first book
ca. 460:	composes second book
455 to 450:	visits Athens with Parmenides

[203] See pages 65/6.
[204] Diels 1876, 35; cf. Mansfeld 1990, 67/8.
[205] On Chronographer P, see pages 38–40.

MELISSUS OF SAMOS

1. Stesimbrotus of Thasos 5th century BCE
via Plutarch, *Themistocles* 2.3
"When Stesimbrotus asserts that Themistocles heard Anaxagoras teach and was interested in Melissus the natural philosopher, he shows a poor grasp of chronology. Pericles was the general who opposed Melissus at the siege of Samos, and the one Anaxagoras spent time with; and he was much younger than Themistocles."

2. Aristotle, *Constitution of Samos* 4th century
via Plutarch, *Pericles* 26
"Aristotle says that Pericles was also defeated by Melissus in an earlier naval battle."

3. Apollodorus of Athens 2nd century
via Diogenes of Laertius, *Lives* 9.24
"Melissus of Samos, son of Ithaegenes… Apollodorus says that he was in his prime during the 84th Olympiad."
84th Olympiad: 444–440 BCE

4. Plutarch, *Pericles* 26.2 2nd century CE
"When [Pericles] set sail, Melissus the son of Ithagenes, a philosopher who was then the general of Samos, scoffed at the small number of ships and their leaders' inexperience and convinced his fellow citizens to attack the Athenians. As soon as the battle began the Samians were victorious, capturing many men and destroying many ships. They took advantage of the sea to store up war materials that they had not acquired previously. Aristotle says that Pericles was also defeated by Melissus in an earlier naval battle."

Spring, 440 BCE

5. Diogenes Laertius, *Lives* 9.24 3rd century
"[Melissus] heard Parmenides teach; and he also engaged in conversation with Heraclitus, at the time when he presented him to the Ephesians who did not know him, just as Hippocrates presented Democritus to the Abderites."

6. Eusebius, *Chronicle* 4th century
via Jerome, *Chronicle* 113d
"Olympiad 84.1: Melissus the natural philosopher is noticed."
Olympiad 84.1: 444/3 BCE

7. The *Suda*, 'Meletos' (sic) (*mu*-496) 10th century
"He was alive in the time of Zeno of Elea and Empedocles. He wrote *On Being*. He was Pericles' political counterpart, and while serving as general on behalf of the Samians, fought a naval battle against the tragedian Sophocles, in the 84th Olympiad."

The arguments in Melissus' treatise betray the obvious influence of Parmenides and imply that he was younger than the Eleatic. The leading political figure at Samos during the Samian revolt, he famously engaged Pericles in a sea-battle (2, 4, 7). The battle they fought can be precisely dated to the spring of 440 BCE.[206] Since generals were usually 40 years or older at the time of their election, Melissus was probably born before 480. This battle is the only datable event in Melissus' life, and there is no indication of when he died. His philosophical work was known to the

[206] Fornara and Lewis 1979, 13.

author of the Hippocratic treatise *The Nature of Man* (chapter 1), which was probably composed in the last decades of the fifth-century.[207]

Some additional clues imply that Melissus was a bit older than 40 in 440 BCE. His contemporary the anecdotalist Stesimbrotus recorded that Themistocles took an interest in his teachings (1). Since Themistocles passed away in 459, having spent his last five years in various parts of Ionia and Persian Lydia, their interaction should date to the late 460's. Plutarch casts doubt on the story, but his skepticism amounts to nothing more than a suspicion that Stesimbrotus meant to say Pericles; Stesimbrotus' contemporary testimony should carry more weight than Plutarch's late doubts.[208] Aristotle asserted that Pericles and Melissus met in battle prior to 440 (2); unfortunately, we do not know the occasion for this conflict. If Melissus was born in the 490's, the report that he heard Parmenides teach becomes plausible, since the age gap between them would be about 20 years (5).[209] The only part of the tradition that appears to be fiction is Diogenes' report that Melissus "introduced" Heraclitus to the Ephesians (5). If this account had any real basis, Hellenistic chronographers would surely have used it to derive Heraclitus' dates, which are otherwise so obscure.

A rare unanimity characterizes the Olympiad datings for Melissus: Jerome/Eusebius, the *Suda*, and a source who converted Apollodorus' indications into Olympiads all placed his acme in the 84th. It is worth noting that this date was chosen despite the fact that the conflict with Pericles took place just a few months before the quadrennium ended in the summer of 440; ancient chronographers could be quite precise when

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[207] Jouanna 1999, 400.

[208] *pace* Jacoby 1902, 271.

[209] Note that Eusebius' version of the Eleatic succession runs Xenophanes, Parmenides, Melissus, and Zeno, with the implication that Melissus was older (*Preparation for the Gospel*, 10.14.14).

given specific data to work with. The entry in Jerome may appear to set his prime in 444, four years too early (6), but this is merely an artifact of the way that the first year of the 84th Olympiad serves to designate the entire period.

Estimated objective dates:

490's BCE:	born
440:	leader at Samos

ANAXAGORAS OF CLAZOMENAE

1. Stesimbrotus of Thasos — 5th century BCE
via Plutarch, *Themistocles* 2.3
"When Stesimbrotus reports that Themistocles heard Anaxagoras teach and was interested in Melissus the natural philosospher, he shows a poor grasp of chronology. Pericles was the general who opposed Melissus at the siege of Samos, and the one Anaxagoras spent time with; and he was much younger than Themistocles."

2. Democritus, *Short Cosmology* — 5th century
via Diogenes Laertius, *Lives* 9.41
"In terms of his chronology Democritus was young when Anaxagoras was old, being forty years his junior, as he says himself in his *Short Cosmology*."

3. Alcidamas of Elaea — 4th century
via Aristotle, *Rhetoric* 2.23, 1398b15

"And as Alcidamas says, wanting to show that all people honor wise men... 'the men of Lampsacus buried Anaxagoras even though he was a foreigner and honor him to this very day'."

4. Plato 4th century

A. *Phaedrus* 269e

"Pericles added to his natural talent; for when he met Anaxagoras, who was such a man (sc. interested in nature), he took his fill of natural philosophy, getting as far as the nature of the mind and the intellect, which Anaxagoras made a great fuss about; and he drew a profit from it which he applied to his speechmaking craft."

cf. Isocrates, *Antidosis* 235

B. *Phaedo* 96a, 97b

"[Socrates:] When I was young, Cebes, I had an amazing desire for the kind of wisdom which they call natural history... One day I heard a man reading from a book which he said was by Anaxagoras..."

5. Aeschines, *Callias* 4th century

via Athenaeus, *Sophists at Dinner* 220b

"Aeschines mocks... Anaxagoras... and says that... Anaxagoras [had a perfect student in] Ariphrades, the brother of the harp-player Arignotus."[210]

6. Demetrius of Phalerum, *Archon List* 4th century

via Diogenes Laertius, *Lives* 2.7 (transmitted text)

"He began teaching philosophy at Athens in the archonship of Callias, living twenty years, as Demetrius of Phalarum says in his *Archon List*; some also say he spent thirty years there."

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[210] Ariphrades was mocked on the comic stage in 424 BCE (Aristophanes, *Knights* 1281–1287), 421 (*Peace* 883–885), and 392 (*Ecclesiazusae* 129).

Archonship of Callias: 456/5 BCE

7. Satyrus, *Lives* 3rd century
via Diogenes Laertius, *Lives* 2.12
"Satyrus in his *Lives* says that a charge was brought against Anaxagoras by Thucydides the opponent of Pericles for colluding with the Medes as well as for impiety; and he was sentenced to death *in absentia*."
ca. 455–442 BCE?

8. Sotion, *Successions* 2nd century
via Diogenes Laertius, *Lives* 2.12
"Sotion in his work on the succession of the philosophers says that Anaxagoras was charged with impiety by Cleon, because he claimed that the sun was a fiery lump; after his student Pericles spoke in his defense, he was fined five talents and sent into exile."
ca. 435–430 BCE

9. Apollodorus, *Chronicle* 2nd century
via Diogenes Laertius, *Lives* 2.7
"Apollodorus says in his *Chronicle* that he was born in the 70th Olympiad, and died in the first year of the 78th Olympiad."[211]
70th Olympiad: 500–496 BCE
Olympiad 78.1: 468/7.

10. *Tabula Capitolina* (*IG* XIV.1297) 2.30 1st century CE
"[…] years since Socrates the philosopher and Heraclitus of Ephesus and Anaxagoras and Parmenides and Zeno."

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[211] Commonly corrected, after Meursius, to Olympiad 88.1, 428/7; but see discussion below, page 172.

ca. 456 BCE (?); see ZENO 5, above

11. Plutarch, *Pericles* 6.2, 32.1, 3 2nd century

A. "It is said that once a ram with one horn on its head was brought in from the countryside for Pericles, and the seer Lampon, when he saw that the horn had grown solid and strong from the middle of its forehead, declared that, while there were two chief men in the city, Thucydides and Pericles, one would end up in control – the man this sign was given to. But Anaxagoras cut open the skull and showed that the brain did not fill its basin, but was pointed like an egg, squeezed by its container out of the place where the root of the horn began. Anaxagoras won the admiration of the bystanders, but a little later it was Lampon who did, after Thucydides lost and all the public affairs ended up under Pericles' uniform control."

ca. 445 BCE

B. "Around this time (sc. when Pheidias died), Aspasia was charged with impiety by Hermippus the comic-poet... Diopeithes wrote a decree that allowed those who did not accept traditions about the gods or who taught theories about the heavens to be impeached, using Anaxagoras to build up suspicion of Pericles... He won a respite for Aspasia after shedding many tears in court... and was afraid enough that he sent Anaxagoras out of the city with an escort."

ca. 436 BCE. See Diodorus Siculus, *Library of History* 12.39.2 for further context.

12. Hippolytus, *Refutation of All Heresies* 1.8.13 3rd century

"He was in his prime in the first year of the 88th Olympiad, at which time they say Plato was born. He was also said to have been an expert in predictions."

Olympiad 88.1: 428/7 BCE

13. Diogenes Laertius, *Lives* 2.7 3rd century

"It is said that at the time of Xerxes' crossing he was twenty years old, and lived to age 72."

Xerxes' crossing of the Hellespont: 480 BCE

14. Eusebius, *Chronicle* 4th century

A. via Jerome, *Chronicle* 107e

"Olympiad 70: the historian Hellanicus, the philosopher Democritus, Heraclitus nicknamed the Obscure, and Anaxagoras the natural philosopher are noted."

Olympiad 70: 500–496 BCE

B. via Jerome, *Chronicle* 111d

"Olympiad 80.1: Anaxagoras dies."

Olympiad 80.1: 460/59 BCE

C. via the Armenian translation, page 192 Karst

"Olympiad 79.2: The Sun was eclipsed. Anaxagoras died."

Olympiad 79.2: 463/2

D. via Syncellus, *Select Chronography* 483.16

"Eclipse of the sun. Anaxagoras dies."

E. via Cyril of Alexandria, *Against Julian* 521b

"In the 70th Olympiad they say the natural philosophers Democritus and Anaxagoras were alive."

F. via *Chronicon Paschale* 274.4

"Olympiad 67.1: the historian Hellanicus, the philosopher Democritus, Heraclitus the Obscure, and the natural philosopher Anaxagoras were noticed."[212]

There are more potentially datable events in the career of Anaxagoras than there are for any other Presocratic sage, and many early, authoritative testimonia, although the precise purport of some of these texts is unclear.[213] This wealth of evidence licenses two departures from my usual approach. I have omitted from the catalogue of evidence a large number of texts that situate Anaxagoras in time but do not shed any added light on the main question regarding his chronology.[214] In addition, I will tackle the evidence for his biography proceeding roughly from birth to death, since the distinction between early and late sources matters less here.

There is general agreement among scholars regarding Anaxagoras' year of birth, since Apollodorus' claim (9) that he was born between 500 and 496 BCE fits well with the other evidence for his life. It is not clear exactly how Apollodorus established this date, but there are several ways he might have done so, e.g. by working backward from an authoritative claim that he was 20 years old when Xerxes invaded Greece, by combining an attested lifespan (78 years) with a year of death, or by working backward from Democritus' declaration that he was 40 years

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[212] See page 148, note 182.

[213] There are numerous substantive discussions of Anaxagoras' chronology: see e.g. Diels 1876, 27–29, Jacoby 1902, 244–250, Davidson 1953, O'Brien 1968a, Mansfeld 1979, 1980, Woodbury 1981, Sider 1981, 1–11, Curd 2007, 130–134, and Graham 2013, 170–174.

[214] E.g. *Parian Marble* 60, Plato, *Hippias Major* 281c, 283a, *Cratylus* 409a, etc.

younger than Anaxagoras (2). I will argue later in favor of the last option.[215]

Anaxagoras' interactions with the city of Athens and its famous statesmen are well attested, though the details have been a subject of lively debate. The earliest anecdote to shed light on this phase of his life comes from the writer Stesimbrotus of Thasos, active around 430 BCE, who recorded a number of stories about public life in Athens. One such story held that the Athenian general Themistocles, hero of the Persian wars, heard Anaxagoras teach (1). Plutarch, our source for this report, rejected it on the grounds that Stesimbrotus' grasp of chronology was shaky. But it is Plutarch's rejection that should be rejected: Plutarch was writing almost six-hundred years after the event, while Stesimbrotus was a contemporary of Anaxagoras, one who had made the acquaintance of other major figures from fifth-century Athens such as Pericles and Thucydides son of Melisias. It certainly is true that Anaxagoras would have been far too young and Themistocles far too busy for their relationship to have blossomed before 475 or so. It makes more sense to ascribe it to the period of Themistocles' exile, when he was *de facto* governor of several cities in Asia Minor, including Magnesia, Myus, and Lampsacus (Plutarch, *Themistocles* 29.7); around 460, say.[216] Myus, it is worth noting, was virtually a suburb of Miletus, the home city of Anaximenes, Anaxagoras' teacher; and Lampsacus was the town where Anaxagoras later retired and died.

At some point in his life Anaxagoras relocated to Athens, remaining there for a long time. Demetrius of Phalerum dated this move quite precisely by placing it in the archonship of Callias, 456/5 BCE (6). The phrase in Diogenes Laertius that accompanies this dating, "being twenty years," (ἐτῶν εἴκοσιν ὤν) has posed problems. If the phrase means,

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[215] See page 195 (and page 192, note 243).

[216] For similar arguments, see Sider 1981, 9n9.

"being twenty years old," this would entail that Anaxagoras was born 20 years before 456, in 475, which is far too late to be a date of birth. One way around this is to correct the name of the archon from Callias to Calliades, who was archon in 480/79. This emendation, first proposed by Johannes Meursius, has proven very popular, since it would make Anaxagoras 20 years old upon his arrival.[217] However, it is very hard to imagine Anaxagoras immigrating to Athens in the year the city was sacked by the Persians. During the 470's there were no teachers in Athens for Anaxagoras to study under, and that a twenty-something year old metic from Clazomenae could hope to attract students seems implausible. Also, if Anaxagoras came to Athens in 480 and left left thirty years later, around 450, several pieces of reliable testimony to his life must be dismissed; these include anecdotes that have him confronting the seer Lampon around 445 (11.A), being put on trial in the 430's (11.B), and his reported teaching of students who were well-known public figures in Athens during the years 420 to 395 (5). To get around these difficulties Jaap Mansfeld has advocated a third option, taking the phrase "being twenty years" to mean "living (in Athens) for twenty years."[218] That Anaxagoras lived in Athens for twenty years is precisely what the parallel phrase at the end of the sentence implies: "some also say he spent thirty years there." On this reading of the transmitted text, Anaxagoras' Athenian period ran from 456 to 437.

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[217] The emendation has been recently endorsed by Woodbury 1981 and Graham 2013, 154/5. Sider 1981, 4/5, takes the sentence to mean that Anaxagoras began teaching philosophy in Clazomenae at age 20. This is grammatically plausible, but Greek sages and wise men were typically in their 30's or older when they began their careers as teachers.

[218] See Mansfeld 1979, who also proposes emending the verb ὤν to διατρίβων.

During this time he formed a close relationship with Pericles (4.A, 7, 8, 11), one that would subsequently put his life at risk.[219]

Anaxagoras' time in Athens is sometimes dated based on a reference to his theory of the Nile flood in Aeschylus' *Suppliants* (559), which was first performed around 463 BCE.[220] The *Eumenides*, performed in 458, contains a reformulation of Anaxagoras' claim that male seed plays a dominant role in forming a child (658–61). Together these two allusions offer compelling evidence for Aeschylus' familiarity with Anaxagoras' thought prior to 463. But does this familiarity prove that Anaxagoras was actually a full-time resident of Athens at the time? The story of Parmenides' and Zeno's visit to Athens, and the careers of the various sophists, show that intellectuals could promote their ideas by going on tour, visiting cities for a season but not putting down roots. Another venue where the elites of various Greek cities could learn about new ideas was Olympia. At some point in the middle of the fifth-century Empedocles' poetry was recited at Olympia, and the astronomer Oenopides erected a stele at the site to publicize the details of his system; Anaxagoras also visited Olympia at some unknown date.[221] The allusions in Aeschylus do not require us to conclude that the philosopher was living in Athens at the time, then; all they indicate is that he had formulated these particular ideas by 465 or so and made them public, either by public readings or circulation of his book. The most likely date

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[219] That Pericles was a "student" of Anaxagoras need not imply that the former was a youth at the time, *pace* Taylor 1917; "students" were often middle-aged and not much younger than their teachers.

[220] So e.g. Graham 2013, 170–174.

[221] Anaxagoras: Diogenes Laertius, *Lives* 2.10; Empedocles: ibid., 8.63, 66; OENOPIDES 4. See Tell 2007 for further context.

for the publication of his written treatise is between the years 463 and 458.[222]

There are several short accounts of a trial or threatened trial of Anaxagoras, two of which contain chronological data. The first, from the Hellenistic biographer Satyrus (7), says that he was charged with impiety and Medism by Thucydides the son of Melesias, perhaps around 450 BCE. Since Anaxagoras spent time with Themistocles, the charge of Medism is plausible, but that Anaxagoras received a death sentence then is pure sensationalism, the sort of invention Satyrus was well known for. The second trial, which is more reliably attested, can be dated to 437 because of its connections with the decree of Diopeithes, which condemned secular teachers and implicitly targeted Anaxagoras (8, 11.B).[223] The main result of this trial or threatened trial was that Anaxagoras left Athens for good.

We have it on the authority of the sophist Alcidamas (3) that Anaxagoras spent his last years in Lampsacus and was buried there. The evidence for his exact year of death, all of it from late sources, is in a rather confused state. Diogenes states, perhaps on the authority of Apollodorus, that the philosopher lived to be 72 (13), and the text of Hippolytus places his *floruit* in 428 BCE (12). Since a man born in 499 would be 72 in 428, it appears that Hippolytus was reporting as an acme date what was originally a year of death.[224] Diogenes' text also states that, according to Apollodorus, Anaxagoras died in the first year of the 78th Olympiad, which is 468/7 (9). The Olympiad date is commonly emended to read Olympiad 88.1, so as to create agreement with the

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[222] As Diano 1973 well argues.

[223] See Mansfeld 1980 for a meticulous review of the evidence.

[224] Perhaps due to a careless confusion between the chronological sense of τελευτᾶν, 'to die', and its root meaning, 'to reach perfection'?

relabeled date in Hippolytus.[225] However, 468/7 was a key date in Anaxagoras' life, the year of the meteorite fall at Aegospotami which he supposedly predicted (*Parian Chronicle* 57).[226] Rather than emend the text, I would follow Fotheringham and Jacoby in thinking that its label was at some point miscopied, and that originally it designated a year when Anaxagoras won recognition for his astonishing 'prediction'.[227] Oddly enough, one entry in Eusebius has the philosopher passing away in 463 – the same year as a solar eclipse which he seems to have witnessed (14.B, C, D).[228] How to explain these 'predictions' mislabeled as Anaxagoras' demise? The following is one possibility. Immediately after giving his date for Anaxagoras, Hippolytus refers to him as an 'expert in prediction' (προγνωστικός). The expression προέγνω τὴν ἔκλειψιν/λίθον 'he forecast the eclipse/meteorite' is perilously close in Greek to the phrase προεγίνετο τὴν ἔκλειψιν/λίθον 'he was alive before the eclipse/meteorite', which might be interpreted as a euphemism for death. Perhaps a simple misreading of such phrases, somewhere in the pre-Diognetian chronographical tradition, gave rise to both entries.

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[225] An emendation going back to Meursius; recently endorsed by Mansfeld 1979, 40/1.

[226] Also given as 467/6 by Pliny, *Natural History* 2.149. For the absolute date, see now Graham and Hintz, 2010. In Pliny, *Natural History* 2.149, and Plutarch, *Lysander* 12, Anaxagoras is said to have 'predicted' the meteorite.

[227] Fotheringham 1908, Jacoby 1930, 728.

[228] That he predicted an eclipse is stated by Philostratus, *Life of Apollonius of Tyana* 1.2. The date of the actual solar eclipse is given correctly as 463 in the Armenian translation, incorrectly by Jerome as 460; see Fotheringham 1908 for further commentary. Graham 2013, 148–159, makes a strong case that Anaxagoras paid close attention to the eclipse of 478, but he must also have taken note of the sun's disappearance in 463, which was a total eclipse, and thus more dramatic than the annular event of 478.

Estimated objective chronology

500 BCE:	born
after 475:	studies with Anaximenes (see below)
after 478:	speculation regarding solar eclipse?
460's:	encounter with exiled Themistocles
after 468:	speculation on meteorite fall at Aegospotami
by 463:	theories of embryology and Nile flood developed
after 463:	speculation regarding solar eclipse
456 to 436:	living in Athens
450's:	first threat of trial?
450's:	his book is available (4.B)
around 445:	explanation of one-horned ram (11.A)
around 437/6:	trial; departure from Athens
436 to 428:	retirement in Lampsacus
428:	death

EMPEDOCLES OF ACRAGAS

1. Xanthus of Lydia, *Lydian History* 5th century BCE
via Diogenes Laertius, *Lives* 8.63

"Aristotle too says of [Empedocles] that he was a liberal who treated all power as something foreign to himself; at any rate he refused the kingship which he was offered, as Xanthus says when writing about him, clearly preferring the simple life instead. Timaeus says the same thing."

2. Gorgias of Leontini 5th century
via Diogenes Laertius, *Lives* 8.59

"Satyrus quotes Gorgias as saying that he was present when Empedocles performed magic."

3. Glaucus of Rhegium, *Ancient Poets and Musicians* 5th century
via Diogenes Laertius, *Lives* 8.52
"Apollodorus the grammarian in his *Chronicle* says:
'He was the son of Meton, and to the town
of Thurii he came just after its foundation,
as Glaucus says."

4. Alcidamas of Elaea, *Physics* 4th century
via Diogenes Laertius, *Lives* 8.56
"Alcidamas in his *Physics* says that Zeno and Empedocles both heard Parmenides teach at around the same time, and later they went their own way, Zeno to practice philosophy on his own, Empedocles to hear Anaxagoras and Pythagoras teach; he emulated the dignity of the latter's way of life and bearing, and the former's theory of nature."

5. Aristotle 4th century
A. *Metaphysics* 1.3, 984a11
"Anaxagoras was [Empedocles'] senior in terms of age but came later in terms of development."
B. via Eratosthenes, *Olympic Victories*, via Diogenes Laertius, *Lives* 8.51
"Eratosthenes likewise says in his *Olympic Victories* that the father of Meton won a victory in the 71st Olympiad, citing the testimony of Aristotle."
71st Olympics: 496 BCE
C. via Diogenes Laertius, *Lives* 8.52
"Aristotle says he… was sixty years old when he died."

6. Theophrastus 4th century

A. via Simplicius, *On Aristotle's Physics* 25.19

"Empedocles of Acragas was born not long after Anaxagoras. He emulated Parmenides and was close to him, and the Pythagoreans even more so."

B. via Diogenes Laertius, *Lives* 8.55

"Theophrastus says that [Empedocles] emulated Parmenides and imitated him in his poetry."

7. Neanthes of Cyzicus 4th century

via Diogenes Laertius, *Lives* 8.72

"Neanthes of Cyzicus says that when Meton died, the seeds of tyranny began to sprout, at which point Empedocles persuaded the people of Acragas to halt their civil conflicts and practice a politics of egalitarianism."

8. Timaeus, *Histories* 3rd century

via Diogenes Laertius, *Lives* 8.54

"Timaeus records in his ninth book that [Empedocles] heard Pythagoras teach, adding that after being accused of plagiarizing doctrine… he was from that time forward forbidden to participate in the lectures."

9. Diodorus of Ephesus Hellenistic(?)

via Diogenes Laertius, *Lives* 8.70

"Writing about Anaximander, Diodorus of Ephesus says that Empedocles emulated him, practicing a tragic actor's pomposity and adopting a solemn manner of dress."

10. Apollodorus, *Chronicle* 2nd century

via Diogenes Laertius, *Lives* 8.52

"Apollodorus the grammarian in his *Chronicle* says:

'He was the son of Meton, and to the town
of Thurii came just after its foundation,
as Glaucus says.'

then, a bit below,

'Some record that as an exile from his homeland
he went to Syracuse and fought with them
against Athens; to me they seem perfectly
ignorant, for either he was no longer alive then
or super old, something which is not attested;
for Aristotle says he, as well as Heraclitus,
was sixty years old when he died.'

The winner at the 71st Olympic games

'in the horse-race, was his grandpa, who had the same
name...'

and thus at the same time Apollodorus alludes to his time period."

71st Olympic games: 496 BCE

11. Aulus Gellius, *Attic Nights* 17.21.13–15 2nd century CE

"About four years later, in the consulship of T. Menenius Agrippa and M. Horatius Pulvillus, during the war with Veii, thirty-six patricians of the Fabii and all their household were surrounded by the enemy near the river Cremera and killed. Around that time Empedocles of Acragas was flourishing in the study of natural philosophy. At Rome during those times it is believed that a board of ten men were chosen to write down the laws and that initially they wrote ten tables..."

Battle of the Cremera: 477 BCE Drafting of first ten tables: 450

12. Diogenes Laertius, *Lives* 8.73, 74 3rd century

"Later, when traveling by wagon to a festival in Messene, he fell and broke his leg; falling ill because of this, he died at age 77... He was in his prime during the 84th Olympiad."
84th Olympiad: 444 to 440 BCE

13. Porphyry of Tyre, *History of Philosophy* 3rd century
via the *Suda* 'Empedokles' (*epsilon*-1002)
"He first heard Parmenides lecture, and according to Porphyry in his *History of Philosophy*, was his boy-lover."

14. Eusebius, *Chronicle* 4th century
A. via Jerome, *Chronicle* 111h
"Olympiad 81.1: Empedocles and Parmenides the natural philosophers are noticed."
Olympiad 81.1: 456/5 BCE
B. via Jerome, *Chronicle* 114d
"Olympiad 86.1: Democritus of Abdera, Empedocles, Hippocrates the physician, Gorgias, Hippias, Prodicus, Zeno, and Parmenides the philosophers are noticed."
Olympiad 86.1: 436/5

C. via Cyril of Alexandria, *Against Julian* 521b
"They say in the 86th Olympiad Democritus of Abdera, Empedocles, Hippocrates, Prodicus, Zeno and Empedocles were alive."
Olympiad 86: 436–432

D. via *Chronicon Paschale* 306.1
"Olympiad 80.1: the natural philosophers Empedocles and Parmenides were noticed."

Olympiad 80.1: 460/59 BCE[229]

15. The *Suda* 'Empedokles' (*epsilon*-1002)
"He was alive during the 79th Olympiad."
Olympiad 79: 464–460 BCE

Unlike most Greek thinkers, Empedocles was a celebrity in his own lifetime, a charismatic figure who, if we are to trust his self-description, drew crowds wherever he went.[230] Several contemporaries left tales of his doings, including the historian Xanthus of Lydia (1), the sophist Gorgias of Leontini (2), and Glaucus of Rhegium (3), author of an important study of early Greek music and poetry. His poetry also contains a number of quasi-autobiographical allusions, and we possess a substantial corpus of anecdotes about his life. Nevertheless it is harder than one might expect to pin down exact dates for Empedocles, or to place the anecdotes told about him in any kind of order.

The most authoritative information for Empedocles' lifespan comes from Aristotle, who held that the poet lived to age 60 (5.C), and was somewhat younger than Anaxagoras (5.A, cf. 6.A). Since Anaxagoras was born in 499 BCE, we should put Empedocles' birth not too many years later. Empedocles should in turn be a bit older than Gorgias, who was his student (2); since Gorgias was born around 480, Empedocles' year of birth should fall before then. We thus have an initial range for his year of birth of 499 to 480.

Now Apollodorus, on the authority of Aristotle and Eratosthenes, recorded that Empedocles' grandfather won an Olympic victory in

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[229] See page 153, note 191.

[230] Diogenes Laertius, *Lives* 8.62. Thorough discussions of the evidence for Empedocles' life and writings can be found in Wright 1981, 1–21, and Goulet 2000, 74–76.

horse-racing in the 71st Olympiad, 496 BCE (5.B, 10). The text of Diogenes which quotes Apollodorus for this assertion goes on to add, somewhat cryptically, "thus at the same time Apollodorus manages to allude to the man's time period" (ὥσθ᾽ ἅμα καὶ <τούτου> τὸν χρόνον ὑπὸ τοῦ Ἀπολλοδώρου σημαίνεσθαι). If this victory bears on Empedocles' chronology then it ought to relate to a significant moment in his life – a moment which could only be his year of birth. If we add ten Olympiads to the grandfather's victory date to get a floruit, the result is the 81st, which is precisely where one Eusebian entry places Empedocles' prime years (14.A; compare Gellius (11), who puts his floruit sometime between 475 and 450). And if we add Aristotle's 60 years to the same date (or 15 Olympiads) we get 436, which is identified as a key year for Empedocles in another Eusebian entry (14.B. and C).[231] Accordingly I take 496 to 436 to be the best possible estimate for Empedocles' life, and, by the principle of *Apollodorus Sciens*, the date given by that chronographer. Melissus is the oldest figure to register awareness of Empedocles' four-element theory (Simplicius, *On Aristotle's The Heavens*, 558.24); since he was active in the 440's, we can date the dissemination of his ideas, probably through his poetry, to the 450's.

Aside from his settling in Thurii just after 444 BCE (3), the only other biographical event we can date even roughly is his involvement in politics. According to the historian Neanthes of Cyzicus, Empedocles put down a nascent movement favoring tyranny at Acragas that took place after his father died (7). This must have happened after Acragas became a free city. The city's last tyrant, Thrasydaeus, was expelled in 472/1 (Diodorus Siculus, *Library of History* 11.53), so his intervention in Agrigentine politics should date later.

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[231] This last match could be a coincidence, since the Eusebian entry is a multi-person period dating.

Empedocles had interactions with other Greek philosophers that can be dated with varying levels of precision. The sophist Alcidamas claimed that at various times Empedocles learned from Parmenides, Pythagoras, and Anaxagoras (4). Empedocles' mentorship by Parmenides is attested in other sources (6.A, B), one even claiming he was the latter's boy-lover (13). If he was Parmenides' lover, their relationship could have started as early as, say, 484 BCE, when the former was a young teenager. Alcidamas adds that Empedocles was subsequently mentored by Pythagoras, and copied his personal ethos. Timaeus likewise believed that Empedocles and Pythagoras had met (8; cf. 6.A). Since Empedocles paid tribute to Pythagoras in his poetry and clearly accepted the Pythagorean notion of reincarnation, there can be no doubt that he was involved with members of the Pythagorean community; the only real question is whether it would have been possible for him to associate with the master himself. As we saw above, a lifespan of ca. 562 to 472 makes good sense of the earliest evidence for Pythagoras' life, and thus Empedocles could have met the sage while he was in his twenties. The testimony of Alcidamas has special weight because he was so close in time to the events described and had a direct link to Empedocles through his teacher Gorgias.

Alcidamas also had Empedocles learning natural philosophy from Anaxagoras (4). The issue of their mutual influence is a complicated one that cannot be fully addressed here.[232] There is, I think, one watertight case of doctrinal borrowing: Empedocles' notion that the moon causes solar eclipses by blocking the sun's light must have come from Anaxagoras.[233] But there is no reason that two men who were nearly the same age should not have learned from each other and been by turns both borrower and lender. In one much-mooted passage Aristotle says

[232] See O'Brien 1968a for a thorough treatment.

[233] ibid., 106–109. Similarly, Graham 2013, 137–159.

that Anaxagoras, while older than Empedocles in terms of his age, was 'later in his deeds' (τοῖς ἔργοις ὕστερος) (5.A).[234] Since antiquity some interpreters have taken the word 'later' to be the equivalent to 'inferior', the idea being that by Aristotelian standards Anaxagoras' philosopher was inferior to Empedocles; nevertheless, the most natural sense of the word ὕστερος is that it has something to do with order in time. Jaap Mansfeld has identified the correct sense of the phrase.[235] The context for this quote is Aristotle's survey in the *Metaphysics* of the ideas of his predecessors, which unfold according to an inner logic of increasing sophistication, with the distinction between different causes being more clearly articulated over time. The word 'deeds' here refers to such conceptual breakthroughs; and the point of Aristotle's statement is that Empedocles, while younger and presumably more sophisticated than Anaxagoras, was in fact somewhat less sophisticated, representing an earlier stage in philosophical development. In other words, Aristotle is noting that in this particular case a purely historical timeline and a more idealized process of intellectual development have fallen out of synch with each other: Anaxagoras was ahead of his time.

The last piece of evidence that might bear on Empedocles' objective chronology is a report that he was personally acquainted with Anaximander, copying his bearing and manner of dress (9). Because the source for this report, Diodorus of Ephesus, is otherwise unknown to us, it would be foolish to place much stock in it. Nevertheless, it cannot be ruled out on chronological grounds, since we have no firm evidence for the year of Anaximander's death, and if the latter lived to age 80, an encounter with Empedocles is not impossible.[236]

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[234] O'Brien 1968a, 97, surveys prior opinions on the sense of this phrase.

[235] Mansfeld 2011.

[236] See further the discussion of Anaximander's life, chapter three.

There was a rather fantastic Hellenistic chronology for Empedocles that we know about only because Apollodorus took the trouble to refute it (10). In that account, Empedocles assisted the Syracusans in their fight against the Athenians in 414 BCE. Apollodorus refuted this claim by arguing that, if Empedocles was still alive in 414, he must have been "super-old" then, something no source attested to; Aristotle had given his lifespan as 60 years. The source for this story will likely have been an inventive Hellenistic biographer like Hermippus or Satyrus. It was probably connected in its original context to a variant account of Empedocles' death, one which held that he lived to be 77, dying in a wagon accident while traveling to Messene (12). The lifespan 77 years does not fit any of the other key dates for his life, but is precisely equal to the interval from Xerxes' crossing (480) to the end of the Peloponnesian War (404), and probably derived from that relation. That is to say, an unknown ancient scholar tried to calculate Empedocles' lifespan based on the premise that he lived from the era of the Persian War to the Peloponnesian War; after reducing both periods to their end points, he counted the years from one to the next and called that interval Empedocles' age at death.

Following an older tradition of scholarship, Diels and Jacoby argued that Apollodorus must have put Empedocles' floruit in 444 BCE, since the chronographer made a point of mentioning his move to Thurii (10); the corresponding Olympiad is cited as a floruit by Chronographer P (12).[237] But if Empedocles was born ca. 484, it is hard to see how his grandfather's chariot victory in 496 could have anything to do with his chronology. Moreover, the entries from Chronographer P are not reliable witnesses to Apollodorus' statements. The year 444 was certainly a key date in Empedocles' biography, probably the last datable event in

[237] Diels 1876, 38–39, Jacoby 1902, 271–277.

his life, but Chronographer P mislabeled it when he called it his acme year. Zeller was on the right track placing Empedocles' birth in the late 490's, where the current consensus also places it; the reconstruction proposed here merely moves it back another four years or so.[238]

Estimated objective chronology:

around 496 BCE:	birth
after 480:	hears Parmenides and Pythagoras teach
after 470:	intervenes in Acragas' politics
after 460:	acquainted with Anaxagoras' philosophy
around 450:	dissemination of poems
just after 444:	settles in Thurii
around 436:	dies; Xanthus of Lydia writes about his life

DEMOCRITUS OF ABDERA

1. Democritus 5th century BCE

A. *Short Cosmology*, via Diogenes Laertius, *Lives* 9.41

"In terms of chronology he was, as he says in his *Short Cosmology*, young when Anaxagoras was old, forty years younger. He says that he composed the *Short Cosmology* 730 years after the capture of Troy."

B. via Eusebius, *Preparation for the Gospel* 10.4.23; cf. Clement, *Stromata* 1.69.5.

"**Of all the men in my lifetime I have traveled over the greatest part of the earth, investigated to the widest extent possible, and seen the most climates and lands, and apprenticed myself to the most learned men, and no one ever surpassed me in the composition of lines**

[238] Zeller 1881, 117n1. Guthrie 1965, 128n2, shows how Zeller's reconstruction developed into the Standard Dating for Empedocles.

accompanied by geometric proofs, not even the so-called 'cord-joiners' of the Egyptians; for all of which purposes I lived abroad for eighty years."[239]

C. via Aristotle, *Meteorology* 1.6, 343b26

"Yet Democritus has doubled-down on his own opinion; for he claims that stars have been seen when comets break up."

2. Glaucus of Rhegium 5th century

via Diogenes Laertius, *Lives* 9.38

"Glaucus of Rhegium, who was alive at the same time as he was, says Democritus heard one of the Pythagoreans teach."

3. Apollodorus of Cyzicus 4th century

via Diogenes Laertius, *Lives* 9.38

"Apollodorus of Cyzicus says Democritus met with Philolaus."

4. Aristotle 4th century

A. *Metaphysics* 13.4, 1078b17

"Socrates was the first to trouble himself over the moral virtues and seek general definitions for them; of the natural philosophers, only Democritus touched on this a bit and offered a kind of definition for warm and cold."

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[239] I would emend Eusebius' οἷς ἐπὶ πᾶσιν to οἷς ἔπι πᾶσιν. The postponement of the preposition is a poeticism (cf. Homer, *Iliad* 1.162, 14.67) but one which can be found in elevated prose (e.g. Plato, *Symposium* 197b5), and is in keeping with the tone of the rest of the passage; see Cicero, *Orator* 67 on Democritus' florid style, and Craik 1998, 142, 151, on bits of epic dialect in a Democritean treatise on anatomy. With this change the pronoun has for its antecedent *all* of the activities and travels described earlier in the sentence, the preposition ἐπί + dative here denoting purpose.

B. *Parts of Animals* 1.36, 642a27

"Democritus was the first to touch on [the definition of substance], not as a prerequisite for the study of Nature, but as if carried along by the subject itself; in the time of Socrates this trend increased, while the investigation of nature drew to a halt as philosophers veered away towards the practical and political virtues."

5. Antisthenes, *Successions* 2nd century

via Diogenes Laertius, *Lives* 9.39

"Antisthenes says... when [Democritus] died he was buried at public expense, having lived to be over one-hundred years old."

6. Apollodorus of Athens 2nd century

via Diogenes Laertius, *Lives* 9.41

"In terms of chronology he was, as he says in his *Short Cosmology*, young when Anaxagoras was old, forty years younger than him; and he says that he composed the *Short Cosmology* 730 years after the capture of Troy. He would have been born (so Apollodorus in his *Chronicle*) during the 80th Olympiad..."

80th Olympiad: 460–456 BCE

7. Cicero 1st century

A. *Academica Posteriora* 1.44

"…topics which led Socrates to confess his ignorance, and even before Socrates, Democritus, Anaxagoras, and Empedocles."

B. *On Ends* 5.88

"Democritus made a few statements about virtue, and even these were inchoate. Later such inquiries were first undertaken in this city by Socrates."

8. Diodorus Siculus, *Library of History* 14.11.5 1st century
"Around the same time the philosopher Democritus died, having lived 90 years."
Entry for the year 404/3 BCE

9. Thrasyllus of Mendes 1st century CE
via Diogenes Laertius, *Lives* 9.41
"As Thrasyllus says in his work entitled *Preface to the Reading of Democritus' Books*, [he was born] during the third year of the 77th Olympiad, being one year older than Socrates."
Olympiad 77.3: 470/69 BCE

10. Phlegon of Tralles, *Long Lives* 2 2nd century
"Democritus, at age 104, died by starving himself."

11. Aulus Gellius, *Attic Nights* 17.21.16–18 2nd century
"Next, the greatest war ever in Greece, the Peloponnesian, which Thucydides recorded, began almost 323 years after the foundation of Rome. At this time Aulus Postumius Tubertus became dictator at Rome, who killed his own son with an axe for attacking the enemy in violation of his order… In this period the tragedians Sophocles and Euripides were famous and well-known, along with the physician Hippocrates and the philosopher Democritus; Socrates of Athens was younger than them, but lived at about the same time."
Start of the Peloponnesian War: 432 BCE
Dictatorship of Tubertus: 431

12. Diogenes Laertius, *Lives* 9.34, 41/2 3rd century
"King Xerxes was entertained by his father and left ministers with him, as Herodotus says, after which [Democritus] heard some of the Magi and

Chaldeans teach; he learned theology and astronomy from them while he was a boy. Subsequently he attached himself to Leucippus and Anaxagoras, according to some, being forty years his junior…. He should thus be a contemporary of Archelaus the student of Anaxagoras and of people like Oenopides, whom he in fact mentions. He also mentions the monistic doctrine of men like Parmenides and Zeno as a topic which was subject to much loud discussion in his time, and mentions Protagoras of Abdera, who was active in the time of Socrates, according to the consensus view."

13. pseudo-Lucian, *Long Lives* 18 3rd century
"Democrtius of Abdera lived to the age of 104, starved himself, and died."

14. Censorinus, *The Day of Birth* 15.3 3rd century
"They say that Democritus of Abdera... nearly reached the same age as Gorgias of Leontini, who is believed to have been the oldest of all, living eight years past one-hundred."

15. Eusebius, *Chronicle* 4th century
A. via Jerome, *Chronicle* 107e
"Olympiad 70: the historian Hellanicus, the philosopher Democritus, Heraclitus nicknamed the Obscure, and Anaxagoras the natural philosopher are noticed."
Olympiad 70: 500–496 BCE
B. via Jerome, *Chronicle* 114d
"Olympiad 86.1: Democritus of Abdera, Empedocles, Hippocrates the physician, Gorgias, Hippias, Prodicus, Zeno, and Parmenides the philosophers are considered prominent."
Olympiad 86.1: 436/5 BCE

C. via Jerome, *Chronicle* 117[f]
"Olympiad 94.4: Democritus dies."
Olympiad 94.4: 401/00 BCE

D. via Cyril of Alexandria, *Against Julian* 521b
"In the 70th Olympiad they say the natural philosophers Democritus and Anaxagoras were alive."

E. via *Succint Chronography* 36.15
"Darius the Bastard, 19 years. In his time were the two philosophers Democritus of Abdera and Socrates of Athens."
Darius II: 423–404 BCE

F. via *Chronicon Paschale* 274.4
"Olympiad 67.1: the historian Hellanicus, the philosopher Democritus, Heraclitus the Obscure, and the natural philosopher Anaxagoras were noticed."[240]
G. via *Chronicon Paschale* 317.5
"Olympiad 105.2: Democritus dies at age 100."
Olympiad 105.2: 459/8 BCE[241]

16. the *Suda* 'Demokritos' (*delta*-447) 10th century

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[240] See page 148, note 182.
[241] The usually unreliable *Chronicon* seems to accurately pinpoint Democritus' year of death, if one assumes the Apollodoran birth-date and a 100-year lifespan. But as this entry is linked to the consulship of Mamertinus and Lateranus (traditional date, 366 BCE), and falls 2 years before a dual entry for the earthquake that destroyed Helice and Buris (380 in Eusebius/Jerome) and Eudoxus' year of notice (392 in Eusebius Jerome), its placement is likely not meaningful.

"Democritus... was born when the philosopher Socrates was, in the 77th Olympiad, though some say in the 80th."
77th Olympiad: 472 to 468 BCE
80th Olympiad: 460 to 456

Our sources describe a number of figures as contemporaries of Democritus: Anaxagoras, Protagoras, Zeno, Leucippus, Oenopides, Archelaus, Socrates, Philolaus, Hippocrates, and Glaucus of Rhegium (2, 3, 11, 12, 15.B); collectively these synchronisms tell us that Democritus' adult years fell in the second half of the fifth-century.[242] In his own writing Democritus offered two very specific clues to his chronology. First, he declared himself to be 40 years younger than Anaxagoras (1.A).[243] If Anaxagoras was born in 499 BCE, this should mean Democritus was born in 460, which was apparently the dating used by Apollodorus (6; cf. 16). Democritus' indication that he completed his *Short Cosmology* 730 years after the sack of Troy (1.A) is at first glance not very informative because his dating of the sack is not attested. He cannot have used the epoch 1183/2 promulgated by Eratosthenes

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[242] Good recent discussions of Democritus' chronology include Davidson 1953, Ferguson 1965, O'Brien 1974, and Mansfeld 1983. Mullach 1843, 2–36, offers a deep review of the evidence which also merits study (although he confuses Antisthenes the Socratic with the succession writer Antisthenes).

[243] I take this to be a paraphrase of Democritus' claim, not of Apollodorus', *pace* Mansfeld 1979, 42. For one, it is introduced by the phrase "as he himself says," while the clause "as Apollodorus says" is clearly joined to the sentence that follows. Furthermore, the contradiction between the Trojan epoch implied by this claim and Apollodorus' own epoch should be regarded as evidence that this claim does not derive from Apollodorus; Mansfeld's argument to the contrary necessitates an unnecessary emendation. Diogenes was certainly not quoting from Democritus' original text; the source for the information presented here is not Apollodorus, but probably Thrasyllus, on whom Diogenes drew extensively in this biography.

because that would put the treatise's completion in 454/3, when Democritus was only six years old; instead it must be later. Diels made the plausible guess that Democritus published the *Short Cosmology* in his 40th year, 421, which would put his Trojan epoch in the year 1150/49.[244] This interpretation has the advantage of offering a motive for Democritus' decision to record the year: 421/0 witnessed the Peace of Nicias, which marked what contemporaries must have regarded as the end of the Peloponnesian War. Like its mythical Trojan predecessor, the great war between Athens and Sparta had lasted approximately ten years, and may have been perceived as a kind of reinstantiation of the earlier event.

As for the origins of the figure 730, I would propose that it was determined, not by tallying up the generations of Spartan kings or the like, but through astronomical numerology.[245] Several astronomers from the fifth-century put forward proposals for lunar-solar 'great years': periods that contain, to a high degree of approximation, both an integer number of solar years and an integer number of lunar months.[246] Two of Democritus' contemporaries, Oenopides and Philolaus, proposed 'great years' that were 59 solar years long.[247] Oenopides equated this period with 730 lunar months.[248] Philolaus preferred the figures 729, one

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[244] Diels 1876, 30n3.

[245] *Contra* Panchenko 2000, 39–41, whose hypothetical 22 generations of kings yield an interval of 733 years, not 730.

[246] van der Waerden 1952, Samuel 1972, 33–49.

[247] Oenopides: Censorinus, *The Day of Birth*, 19.2, Aelian, *Miscellaneous History* 10.7; Philolaus: Censorinus 18.8, 19.2. For discussion see Huffman 1993, 276–279, and Samuel 1972, 41/2.

[248] This cycle can easily be derived from crude estimates for the length of the solar year and the lunar month. Suppose one assumes that a solar year contains 730 days and nights (i.e. 365 nykthemera) and a lunar month, 59 days and nights (i.e. 29.5 nykthemera). It is trivially obvious that 59 years, each containing 730 days and

month less, probably in order to produce a more numerologically pleasing number, since $729 = 3^5$. Democritus expressly mentioned Oenopides in his work, presumably in an astronomical context (12), and was acquainted with Philolaus (3). It is surely no coincidence that his measure of the period from the end of the Trojan War to the end of the Peloponnesian War featured the same large number as Oenopides' great year. Possibly he thought of this as the length of a great historical cycle after which events repeat themselves.[249]

Dmitri Panchenko has recently pointed out another feature of Democritus' Trojan epoch that sheds considerable light on the origins of Eratosthenes' epoch.[250] The name of the Athenian archon in 421/0 BCE, Aristion, is nearly the same as that of the archon of 454/3, Ariston. If one were to confuse the former with the latter and place the Trojan epoch 730 years before 454/3, the result would be 1183/2 – Eratosthenes' date for the fall of Troy. Whether this was an honest mistake on Eratosthenes' part or, as Panchenko surmises, a piece of ledgerdemain, the coincidence is a striking one and renders his conjecture highly plausible. This would in turn imply that Democritus mentioned Aristion by name in his dating statement – otherwise, the confusion regarding the Trojan epoch could not have arisen. A mention of the archon-year of Democritus' floruit would have made it a simple matter for Apollodorus to calculate his year of birth and, given a 40-year

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nights, will be exactly as long as 730 months, each containing 59 days and nights. Hence, a great year of 59 solar years will contain 730 lunar months.

[249] For an analogy there is Heraclitus' cosmic cycle of 10,800 years (Censorinus, *The Day of Birth* 18.11), which is equal to 30 times 360; that is, the 30 years of a single human generation constitute just one 'day' in the Great Year. (See further Kahn 1979, 156–159.) In Democritus' system, a single solar year would play the same role that an ordinary month does in Oenopides' 59-year cycle.

[250] Panchenko 2000, who credits Alexander Verlinsky with recognition of the homonymous archons.

gap in their ages, Anaxagoras' as well. Apollodorus' own statement regarding Democritus' birthdate was, according to Diogenes, "[Democritus] says that he composed the *Short Cosmology* 730 years after the capture of Troy; he would have been born – so Apollodorus in his *Chronicle* – during the 80th Olympiad" (6). No mention is made here of Aristion's archonship, and as we shall see below, there is good reason to believe that Apollodorus left out this key detail.

There were two other traditions about Democritus' birth year. Tiberius' astrologer Thrasyllus of Mendes, a polymath who created the tetralogical arrangement of Plato's works and also edited Democritus', disregarded Apollodorus and claimed that Democritus was born in 470/69 BCE (9; cf. 16). No source explains why Thrasyllus made this adjustment. The formidable Russian editor of Democritus' fragments, Solomon Luria, thought that he wanted to accommodate Aristotle's claims that Democritus' efforts to formulate definitions were cruder than Socrates' and thus that the Abderite was older (4.A, B); similar allusions to Democritus' seniority appear in Cicero and Gellius (7.A, B, 11).[251] Thus, the year 470 represents the smallest deviation from Apollodorus' dating that is consistent with Democritus being older than Socrates (who was born in 469). This is plausible enough. However, Luria's further assertion, that Thrasyllus was objectively correct about Democritus' year of birth, strikes me as much less plausible. For one, it requires us to explain away the evidence that Democritus was 40 years younger than Anaxagoras, a claim deriving from Democritus' own work. Moreover, the evidence from Aristotle, Cicero, and Gellius is far from clear-cut. Neither of the latter states outright that Democritus was older than Socrates; instead, both append his name to short lists of figures who were older than Socrates (Anaxagoras, Empedocles; Sophocles, Euripides,

[251] Luria 1970, Commentary a.1. O'Brien 1974 also endorses the view that Thrasyllus was correct.

Hippocrates), a loose usage which we still observe today when we call Democritus a 'Pre-Socratic'. Aristotle himself never expresses an opinion on the relative chronology of Socrates and Democritus. For the Stagerite the best evidence for Socrates' skill at definition-making would have been Plato's dialogues, which were all composed several decades after Socrates' death, and thus credit him with an anachronistically high level of dialectical sophistication. Luria's hypothesis may nicely account for Thrasyllus' variant dating, but it does not suffice to prove that dating objectively correct.

Another tradition put Democritus' birth quite a bit earlier, in the 490's BCE. Diodorus Siculus explicitly claims that Democritus died at age 90 in 404/3, which implies he was born in 493/2 (8; cf. 15.C). Several stories were told about Democritus' life which fit such an early date: in one he was a boy in 480 studying with the Magi who accompanied Xerxes (12), in another he recognized the untapped talent of his fellow Abderite Protagoras before the latter became a sophist – it was generally believed that Protagoras was also born in 493 (Diogenes Laertius, *Lives* 9.50, 53).[252] Clearly some scholars were of the view that Democritus was born in the 490's and was a young man during the Persian Wars. Diels and Jacoby have plausibly explained how this belief arose. Fastening on Democritus' claim that 730 years separated the fall of Troy from the publication of the *Short Cosmology*, some chronographer treated it as fact in the context of the chronographer's own, Hellenistic standards.[253] According to Eratosthenes, the sack fell in 1183/2; counting 730 years from this date gives 454/3. If this year is a treated as a floruit, then Democritus' year of birth should be 493/2. This calculation must have been made fairly soon after Apollodorus' poem was published, since it was accepted by Diodorus about a century later. Whoever was

[252] Davidson 1953, 33–39.

[253] Diels 1876, 29/30, Jacoby 1902, 292/3. Similarly O'Brien 1974, 28.

responsible for it must have ignored or been ignorant of Democritus' own dating of his work to the archonship of Aristion; the most likely explanation for this ignorance is that Apollodorus did not mention it in his poem.

There was a well-attested tradition that Democritus lived to a ripe old age. Antisthenes had him passing the century mark (5), Diodorus gave his lifespan as 90 years (8), and later sources mention ages of 100 or 104 (13, 15.F); some scatter in the figures is evident, with a hard minimum of 90. The case recalls that of Xenophanes, who must have lived to at least 92, given his autobiographical comments, but whose exact lifespan is unknown because there is no record of the year of his death. By analogy with Xenophanes, I would argue that the tradition of Democritus' longevity was based on the famous autobiographical fragment in which he represents himself as living abroad for 80 years (1.B). If one assumes he began his journeys as a boy accompanying his father, he would have been around 90 when this statement was made (8), if he was 20 years old, he would have been 104 (13), and so on. Doubts have been raised about the authenticity of the text and the figure '80 years', but ultimately the case in favor seems to me to be strong.[254] Treated as a valid piece of evidence for Democritus' chronology, it tells us that he lived to be 80 – from 459 to at least 380 – *plus* a span of years equal to his age when he first left home; *plus* however many years of life remained for him after he recorded these words; *minus* any years that were due to the philosopher's exaggeration.

One potentially datable event turns up near the end of Democritus' long life. According to Aristotle, Democritus claimed as proof of his theory that comets are made up of swarms of 'planets' (i.e. non-fixed stars) the fact that multiple stars appear when comets dissolve (1.C).

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[254] See in particular Luria 1979, 2.XIV, who effectively counters the objections to its authenticity raised by Diels and Wellmann.

Bright comets are rare phenomena, the most spectacular of which appear once every few decades. In his *Meteorology* Aristotle describes four great comets, those of 467, 426, 373/2, and 341/0 BCE.[255] Of these, only one – the comet of 373/2, which rivaled the full moon in brightness (Diodorus Siculus, *Library of History* 15.50.3) – is described as breaking up (Aristotle, *Meteorology* 1.7, 344b34):

> "The great star which we mentioned earlier appeared in the west while it was winter under clear and frosty skies, in the archonship of Asteius; on the first day it was not visible because it set before the sun, but on the next it was seen, falling behind the sun just enough to be visible, and immediately setting. Its light stretched across a third of the sky like a jump; hence it was also called a path. It rose as high as the belt of Orion and broke up there."

The historian Ephorus also witnessed the split; Seneca casts doubt on his report, but Ephorus had no obvious reason to lie and was in his 20's when the comet appeared (*Investigations of Nature* 7.16.2):

> "Ephorus is not characterized by absolute trustworthiness: he is often deceived, and more often deceives, as when he said that a comet which was observed by the eyes of all humankind, since it led to the occurrence of a momentous event, submerging at its rising the cities of Helice and Buris – this comet, he says, split into two stars, something no one besides him reports."

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[255] *Meteorology* 1.7, 344b32 (467); 1.6, 343b4 (426); 1.6, 343b2, 1.7, 344b34 (373/2); 1.7, 345a2 (341/0).

Reports from naked-eye observers of comets appearing to break apart are exceedingly rare.[256] If Democritus cited a visible break-up to support his theory, he must have been referring to the event of 373/2. For that to be the case, he would obviously have to have been alive in that year, about 87 years old. Since various reports made him out to be a nonagenarian, such a scenario is entirely possible.

Democritus is twice named by Eusebius in multi-person synchronisms. The first aligns him with Hellanicus, Anaxagoras, and Heraclitus, and dates to the 70th Olympiad, 500 to 496 BCE (15.A, D). While Heraclitus was probably a middle-aged man at the time, Anaxagoras was only an infant. Whether Hellanicus was alive then is unclear; since he lived to at least 408, a year of birth around 500 would put him in his nineties; an alternative birthdate of 480 seems much more plausible.[257] As for Democritus, only a late and non-Apollodoran tradition had him being born in the 490's, and even this placed his birth year in 493. In short, it is hard to believe that any scholar versed in chronology could have deduced that the floruits or even the birth year for all four men fell within this period, despite the clear implication of this entry. A more plausible explanation for this dating is that it originated as a claim that all four men were alive during the era of the Persian Wars, a period which, when taken to include the Ionian revolt, started in 499. This period was subsequently designated by its first Olympiad and then included in Eusebius' *Chronicle*, the loss of context creating a misleading impression.[258]

The second synchronism falls closer to the middle years of Democritus' life, and includes Empedocles, Hippocrates, Gorgias, Hippias, Prodicus,

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[256] Most recently, Biela's comet in 1845 – but even that breakup required the use of a telescope to see.

[257] See page 275.

[258] See pages 66/7.

Parmenides and Zeno (15.B). As noted in chapter one, we are likely dealing once again with a statement to the effect that all eight were active just before the start of the Peloponnesian War.[259] In Gellius another version of this synchronism appears with the tragedians Sophocles and Euripides replacing the sophists; it is specifically linked to the outbreak of the war (11).

Estimated chronology:

460 BCE:	birth
around 421:	publication of the *Short Cosmology*
373/2:	witnesses a comet breaking-up(?)
after 370:	death

PLATO OF ATHENS

1. Plato, *Republic* 368a — 4th century BCE

"Glaucon's lover did it right, sons of 'the man', when he started his elegy to you for winning glory at the battle of Megara with, 'Sons of Ariston, divine family of a famous man'."

Battle of Megara: 409 BCE

2. Plato(?), *Seventh Letter* 324b–d — 4th century

"When I was young the same thing happened to me that happens to many people: I thought that, just as soon as I could become an independent adult, I would immediately get involved in politics. Then a certain twist of fate involving the affairs of the polis affected me as follows. Many people had nothing but bad things to say about the

[259] See pages 65/6.

regime at the time; so a change took place, and leading this change were fifty-one men who were archons, eleven in the city, ten in the Piraeus – each of these groups in charge of the agora and everything in the urban parts that needed management – while thirty archons were installed with authority over all things. Several of these men happened to be family-members and friends of mine, and they immediately invited me into such business as was appropriate. And since I was a young man, my feelings are no surprise: I thought they would manage the city by steering it from a crooked way of life to a just one, and so I paid them close attention, to see what they would do."

The Thirty Tyrants: 404 BCE

3. Hermodorus of Athens, *Plato* 4th century
via Diogenes Laertius, *Lives* 3.6

"From then on, at age 20, so people say, he heard Socrates teach. When the latter passed away he devoted himself to Cratylus the Heraclitean and Hermogenes who taught the ideas of Parmenides. Then, when he was 28 years old, as Hermodorus says, he withdrew to Megara to visit Euclides accompanied by various other Socratics. Next he went off to Cyrene to visit Theodorus the mathematician, and from there he went to Italy to visit the Pythagoreans Philolaus and Eurytus, and from there to Egypt to visit the prophets…"

4. Neanthes of Cyzicus 4th century
via Diogenes Laertius, *Lives* 3.3

"However Neanthes says that Plato died at age 84."

5. Philochorus of Athens 4th/3rd century
via *Life of Aristotle* (*Vita Marciana*) 428.6

"[Aristotle] outlived Plato by 23 years, sometimes teaching Alexander the son of Philippus, sometimes traveling the earth with him, sometimes writing, sometimes heading his school. Aristotle could not have built the Lyceum in opposition to Plato, as Aristoxenus was first to charge, followed later by Aristides, since he was with Plato until his death. And given that Plato was born when Diotimus was archon at Athens and departed from this life after 82 years under Theophilus, and given that Aristotle was born under Diotrephes and died at 63 under Philocles, and given that Aristotle became a student of Plato under Nausigenes, and given that from Theophilus, under whom Plato died, until Philocles, under whom Aristotle died, he outlived Plato by 23 [sic] years – it can't be the case, as his accusers says, that Aristotle became a student of Plato under Eudoxus [sic] at age 40. For since Aristotle lived 63 years, when the 20 years which he spent studying with Plato are subtracted, there are only three years after Plato's death. And in three years, not only would it be hard to publish so much, it would not even be easy to read it. So Philochorus has recorded."[260]

Archonship of Diotimus:	428/7 BCE	death of Plato
Archonship of Diotrephes:	384/3	birth of Aristotle
Archonship of Nausigenes:	368/7	Aristotle joins Plato
Archonship of Theophilus:	348/7	Plato dies
Archonship of 'Eudoxus':	345/4	Aristotle joins Plato (false)

[260] There are some textual problems with this passage, two of which touch on the chronological argument. First, assuming that the relevant archons are named correctly, the argument made here should lead to the conclusion that Aristotle outlived Plato by 27 years, not 23. Second, according to the chronology which is criticized here, Aristotle joined Plato's school at age 40 – but the year in questions, 345/4, was the archonship of Eubulus, not Eudoxus. Eudoxus was of course Plato's companion and not an archon; the original would have written 'Eubulus'. On this last point, see Waschkies 1977, 41–52.

Archonship of Philocles: 322/1 Aristotle dies

6. Hermippus of Smyrna, *Lives* 3rd century
via Diogenes Laertius, *Lives* 3.2
"He died, as Hermippus says, at a wedding feast in the first year of the 108th Olympiad, having lived one year more than eighty."
Olympiad 108.1: 348/7

7. Apollodorus of Athens, *Chronicle* 2nd century
via Diogenes Laertius, *Lives* 3.2
"And Plato was born, as Apollodorus says in his *Chronicle*, in the 88th Olympiad, on the 7th of Thargelion, at the time when Apollo is said to be on Delos."
88th Olympiad: 428 to 424 BCE
7th of Thargelion: late May

8. Philodemus, *List of Academics* 1st century
A. Column 2.35/6
"[Plato] [liv]ed two and ei[ght]y years."
B. Column 10.5–8
"After becom[ing a stud]ent of Socrates… twenty-seven years old he sailed to Sicily and Italy, to the Pythagoreans."

9. Seneca, *Letters* 58.31 1st century CE
"I'm sure you know that, due to his self-care, Plato was fortunate enough to pass away on his birthday and complete his 81st year without any evidence of decline. That was why some Magi, who happened to be in Athens, offered a sacrifice at his death, reckoning his lot more than

human; for in his year-tally he had completed the most perfect number, the one whose factors are nine nines."

10. Favorinus, *Notes* 2nd century
via Diogenes Laertius, *Lives* 3.40
"And he died in the manner just described in the thirteenth year of Philip's reign, as Favorinus says in the third book of his *Notes*, and that he was honored by Philip is reported by Theopompus."
13th year of Philip: 347/6 BCE

11. Athenaeus, *Sophists at Dinner* 217a 2nd century
"For when Agathon won his victory, Plato was fourteen years old. The former was crowned victor in the archonship of Euphemus, while Plato was born in the archonship of the Apollodorus who followed Euthydemus. Having lived for 82 years he departed this life when the Theophilus who followed Callimachus was archon, who was the eighty-second [sc. subsequent archon]."
archonship of Euphemus: 417/6 BCE
archonship of Apollodorus: 430/29
archonship of Theophilus: 348/7

12. Hippolytus, *Refutation of All Heresies* 1.8.13 3rd century
"[Anaxagoras] was in his prime in the first year of the 88th Olympiad, at which time people say Plato was born."
Olympiad 88.1: 428/7 BCE

13. Diogenes Laertius, *Lives* 3.3 3rd century
"So [Plato] was six years younger than Isocrates; for the latter was born in the archonship of Lysimachus, while Plato was born in the archonship of Ameinias (sic), when Pericles died."

archonship of Lysimachus: 436/5 BCE
archonship of Ameinias: 423/2
death of Pericles: 430/29 (archonship of Apollodorus)

14. Eusebius, *Chronicle* 4th century

A. via Jerome, *Chronicle* 115g

"Olympiad 88.4: Plato is born."

Olympiad 88.4: 425/4

B. via Jerome, *Chronicle* 118l

"Olympiad 98.1: The philosopher Plato is noticed."

Olympiad 98.1: 388/7

C. via Jerome, *Chronicle* 122c

"Olympiad 108.3: Plato dies."

Olympiad 108.3: 345/4

D. via *Succinct Chronography* 37.4–7

"Artaxerxes Memnon, 41 years. In this time Socrates drank the hemlock, Speusippus was noticed, the astronomer Eudoxus was noticed, and the philosopher Plato was in his prime."

Artaxerxes Memnon: 404–358 BCE

E. via *Chronicon Paschale* 310.15

"Olympiad 89.1: Plato was born."

Olympiad 89.1: 424/3 BCE[261]

F. via *Chronicon Paschale* 314.17

"Olympiad 99.4: the philosopher Plato was in his prime."

Olympiad 99.4: 381/0 BCE[262]

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[261] This entry clearly corresponds to 14.A, with a one-year differential.

[262] This is placed 1 year after an entry for the capture of Rome by the Gauls (391/0 in Eusebius/Jerome), and thus likley corresponds to 14.B.

15. anonymous, *Prolegomena to Platonic Philosophy* 6.1–4 6th century
"[Plato] lived 81 years, and in doing so showed that he was fortunate enough to be Apollonian. For nine, the number of the Muses, multiplied by itself, produces the number 81; and that the Muses are the servants of Apollo, no one will deny."

16. The *Suda*, 'Platon' (*pi*-1707) 10th century
"Plato: he was born on Aegina in the 88th Olympiad, after the opening of the Peloponnesian War, and lived 82 years, and died in the 108th Olympiad."
88th Olympiad: 428 to 424 BCE
108th Olympiad: 348 to 344

A complete discussion of the chronology of Plato's life and writings would require examination of a wide range of evidence from the dialogues and other sources. Here I will focus only on the testimony for his dates of birth and death, and the reception of those dates, drawing attention to a potential discrepancy between the received and the objective dating for his birth. The ancient sources are basically unanimous in holding that Plato passed away in our year 348 BCE; the majority also maintain that he was either 81 or 82 when he died, hence born in 429 or 428. However, Debra Nails has recently made a strong case that Plato was in fact born in 425 or 424.[263] The reason for this discrepancy is not entirely clear, but it may go back to inconsistent claims made by Plato himself about his age.

Nails begins her discussion by citing the oldest evidence for Plato's year of birth, an offhand remark in the *Republic* which tells us that

[263] Nails 2002, 243–247.

Plato's older brothers Adeimantus and Glaucon participated in a battle fought at Megara in 409 BCE (1). Plato, she argues, left out his own participation in the event because he was too young to serve; hence, born after 429 or so. Next, Plato, or the well-informed fourth-century author of the famous *Seventh Letter*, reported that he was a young man and just about to come of age when various members of his family took part in the coup of the Thirty Tyrants (2). Plato would have come of age when he reached 20, and the coup took place in 404. Combining all these data, Nails deduces that Plato was born in 424. Now it is only by assuming an act of authorial modesty that one would infer from (1) that Glaucon and Adeimantus fought at Megara and Plato did not. Moreover, if there had been a gap of a year or two between Plato's coming of age and the coup in 404, one would not necessarily expect Plato (or the author of the letter) to be so careful as to mention it. That said, Nails' hypothesis is supported by the earliest of the post-Platonic testimonia, a biographical passage paraphrased by Diogenes in which Hermodorus sketched out his master's career. According to this, Plato was 28 years old when he left Athens for Megara some time after Socrates' death (3); in what looks like another version of the same narrative his age is given as 27 (8.B). If we assume that this journey took place immediately after Socrates' execution in 399, Plato will have been born in 426 or 425, depending on which reported age is correct. But notice that the narrative inserts another activity between Socrates' death and Plato's journey to Megara at age 28 – Plato's studies with Cratylus and Hermogenes. If we make this period of study one year long, his departure for Megara is moved to 398, which would in turn entail that Plato was born in 425 or 424, i.e. the time Nails prefers. If we had no

other evidence for Plato's birth, this dating of his birth would likely be the consensus.[264]

Now let us turn to the Hellenistic witnesses for Plato's chronology. Almost every ancient source agrees that he died in 348/7 BCE, and we may take this as an establish fact, since Plato was by the end of his life a well-known public figure, his death a significant moment in Athenian and Greek history (9, 10; cf EUDOXUS 6). Early sources for Plato's year of birth tend to specify his lifespan; these reports are divided into what we might call 81-year and 82-year traditions. The 82-year tradition is first attested by Philochorus (5), repeated by Philodemus in his historical sketch of the early Academy (8.A), and shows up in various other late sources (11; cf. Valerius Maximus, *Memorable Deeds* 8.7.3). Hermippus is the earliest authority in the 81-year tradition, followed by Cicero (*Old Age* 5.13), Seneca (9), and others.[265] It is not immediately clear whether Apollodorus specified a lifespan for Plato, but the fact that he placed his birth in the 88th Olympiad suggests that he followed the 81-year tradition – had he thought Plato was 82 when he died, his year of birth would have been 429/8, which is Olympiad 87.4. It also should be noted that there is some uncertainty about which tradition Philochorus followed. On the one hand, he had Plato living to age 82; on the other, he identified the endpoints of his life as 428/7 and 348/7, which should place him in the 81-year camp. How to explain the bifurcation of the traditions, as well as this seeming confusion on Philochorus' part?

The answer, I think, lies in the fact that Plato reportedly died on his *birthday* (9). Seneca is the earliest source to make this claim, but the belief probably predated Apollodorus. This would explain how the

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[264] ibid. 243–250.

[265] See also (15), pseudo-Lucian, *Long Lives* 21, Augustine, *City of God* 8.11, Jerome, *Letters* 52.3.5.

chronographer was able to pin down the exact day of Plato's birth, an event not normally included in the historical record (7): by simply retrojecting the calendar date of his death. This situation generates an ambiguity, since Plato will have reached his 82nd year on the same day that he completed his 81st; one would thus be justified in giving either figure as his age at death. While the figure 82 years was technically correct, an 81-year lifespan held a certain added appeal since the 'perfection' of the number (which equals 9^2 or 3^4) could be connected to Plato's mathematical idealism (9, 15).[266]

The one outlier in the early tradition is Neanthes, who had Plato dying in his 84th year, which would imply that he was born in 431/0 (4). It is not clear how Neanthes arrived at this lifespan, but it may be the product of a loose synchronism of Plato's birth with Pericles' death, a correspondence that Diogenes and Athenaeus both hint at (11, 13). In Eusebius the dates of Plato's birth and death are both shifted down by three years relative to the Apollodoran vulgate, even though Plato's acme date is reported correctly (14.A, B, C). These divergences are probably not significant, since several other entries from this part of the *Chronicle* show errors of a similar magnitude.[267]

Estimated objective chronology:[268]

428 BCE:	traditional year of birth
around 425:	actual year of birth?
ca. 385:	first trip to Sicily

[266] Censorinus, *The Day of Birth* 15.1, reports Plato's valorization of the number 81 as an ideal lifespan.
[267] See page 221, note 281.
[268] The dates for Plato's Sicilian voyages and the foundation of the Academy are taken from Nails 2004, 247–9.

ca. 384:	establishment of the Academy
366:	second trip to Sicily
361/0:	third trip to Sicily
348/7:	dies

THEAETETUS OF ATHENS

1. Plato, *Theaetetus* 142a, c — 4th century BCE

"Euclides: As I was going down to the port I happened to encounter Theaetetus while he was being carried from the camp at Corinth to Athens… And I remembered Socrates and marveled at how prophetically he spoke about things like this. For I think shortly before his death he encountered [Theaetetus], who was a young man then, and after meeting with him and talking to him came to be a great admirer of his talent."

2. Eudemus of Rhodes — 4th century
via Proclus, *On the 1st Book of Euclid's Elements* 66.14

"During this time [sc. when Plato was active] Leodamas of Thasus, Archytas of Tarentum, and Theaetetus of Athens were also alive…"

3. Eusebius, *Chronicle* — 4th century CE
via Jerome, *Chronicle* 114b

"Olympiad 85.3: The mathematician Theaetetus is noticed."
Olympiad 85.3: 438/7

4. the *Suda*, s.v. 'Theaitetos' (*theta*-93) — 10th century

"Theaetetus of Athens, astronomer, philosopher, student of Socrates; he taught at Heracleia. He was the first to draw the so-called five solids. He was alive after the Peloponnesian Wars."

In Plato's eponymous dialogue, set shortly before Socrates' death in 399 BCE, Theaetetus is describd as a μειράκιον. The Greek term, which bears the rather precise sense of a man who is in his late teens but shy of twenty, allows us to date Theaetetus' birth to 415 or just before (1). The dialogue also strongly implies that he died from wounds sustained in battle while fighting near Corinth. Of the two battles that might be referred to, one was fought in the spring of 391, the other in 369. Against the received wisdom that Theaetetus died in the latter battle at age 46, Debra Nails has recently revived the case for the earlier conflict and concluded that Theaetetus died at the tender age of 24.[269] The mainstays of her argument are the claims that (a) it is unreasonable to imagine a 46-year old man distinguishing himself as a hoplite; (b) Euclides, one of two characters in the framing dialogue, has just come off a 30-kilometer walk from Megara to Athens and back, something a 59-year old might do but that a 81-year old could not; and (c), Socrates' question whether Theaetetus would come of age (142d) is more poignant if he died young. None of these arguments stand up to scrutiny, however. Hoplites in their forties were no anomaly in classical Greece, and even in Nails' scenario, Theaetetus does 'come of age (εἰς ἡλικίαν ἔλθοι) by surviving into his 20's. The argument about Euclides' stamina rests on her assumption that the Megarian was born around 450. However, he was surely born much later, since Diogenes' biography (*Lives* 2.109) has him teaching Demosthenes (hence active in the 360's) and conducting controversies with Aristotle (350's or 340's); a much more likely era for his birth would be the early 420's, which would make Euclides' long-distance walks at age 60 or so more plausible.[270]

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[269] Nails 2002, 274–278.

[270] Döring 1972, 73/4, takes PLATO 3 to mean that he was a bit older than Plato and so dates his birth to ca. 435 BCE.

Nails also omits to take into account the fact that Eudemus, an acquaintance of philosophers who would have personally known Theaetetus, placed him in the company of Archytas, who lived well into the fourth-century. A notice in the *Suda* that cannot easily be explained away has him becoming a geometry teacher, which would also suggest that he reached middle age (4). While he may have died younger than the average Greek philosopher, Theaetetus nevertheless made it into his forties.

The notice in the *Suda* that Theaetetus was active after the Peloponnesian Wars is both correct and precise, if we assume that it dates his conversation with Socrates as a young man, rather than his prime years (4). The entry in Eusebius that has him being born in 438 is clearly wrong (3). Ultimately it must rest on a misinterpretation of the verb γέγωνε as an indication of Theaetetus' acme: an entry which originally indicated that he was *active* in 399 was taken to mean that he reached his 40th year then.

Estimated objective chronology:

around 415 BCE:	born
399:	dramatic date of *Theaetetus*
370's:	teaches at Heracleia?
369:	dies from wounds received in battle

EUDOXUS OF CNIDUS

1. Eudemus of Rhodes 4th century BCE
via Proclus, *On the 1st Book of Euclid's Elements* 66.14, 18, 67.2, 8–12

"During this time [sc. Plato's lifetime], Leodamas of Thasus was alive, as was Archytas of Tarentum and Theaetetus of Athens… Younger than Leodamas were Neoclides and his student Leon, who added many simplifications to the works of their predecessors… Eudoxus of Cnidus was a little younger than Leon and an associate of people like Plato… Amyclas of Heracleia, one of Plato's companions, and Menaechmus, who was a student of Eudoxus and spent time with Plato, and Dinostratus, Menaechmus' brother, made all of geometry even more perfect."

2. Callimachus of Cyrene, *Tables* 3rd century
via Diogenes Laertius, *Lives* 8.86
"He learned geometry from Archytas, and medicine from Philistion of Sicily, as Callimachus says in his *Tables*."

3. Sotion, *Successions* 2nd century
via Diogenes Laertius, *Lives* 8.86/7
"Sotion in his *Successions* says that [Eudoxus] also heard Plato teach; for at age 23, in a state of poverty, he sailed to Athens with the doctor Theomedon, drawn by the fame of the followers of Socrates; Theomedon supported him, and according to some was his lover. Having settled in the Peiraeus he would go up every day to Athens, listen to the sophists there, then go home. After spending two months there he went home and borrowed enough from his friends to sail to Egypt, accompanied by the physician Chrysippus, bearing letters of recommendation from Agesilaus to Nectanabis, who set him up with the priests. He remained there for four months and a year, shaving his chin and eyebrows, and, according to some, writing his *Octaeteris*. From there he moved to Cyzicus and taught as a sophist on the Propontis; he also visited Mausolus. By and by he returned to Athens surrounded by a

large crowd of students – in order to annoy Plato, some say, who had originally dismissed him."[271]

Agesilaus of Sparta: 400 to 360 BCE
Nectanebis I of Egypt: 379 to 361
Mausolus of Caria: 377 to 353

4. Apollodorus of Athens, *Chronicle* 2nd century
via Diogenes Laertius, *Lives* 8.90

"This same Apollodorus says that Eudoxus was in his prime in the 103rd Olympiad and discovered facts about curves."

103rd Olympiad: 368–364 BCE

5. Strabo, *Geography* 17.1.29 1st century CE

"Eudoxus traveled here [i.e. to Heliopolis] with Plato, and it is reported by some that they spent thirteen years with the priests here."

6. Pliny the Elder, *Natural History* 30.3 1st century

"Eudoxus, who wanted [magic] to be regarded as the most famous and useful sect of philosophy, reports that Zoroaster lived six thousand years before Plato's death; Aristotle says this too."

Plato's death: 348 BCE

7. Aulus Gellius, *Attic Nights* 17.21.19-25 2nd century

"… Socrates of Athens was condemned to death and died in prison from poison. At about the same time at Rome M. Furius Camillus was made dictator and captured Veii; and not much later there was the Senonian War, when the Gauls captured Rome, except for the Capitoline. A little

[271] In his edition of Sotion's fragments Wehrli only quotes the first sentence of this passage (1978, 26); however, the use of indirect discourse shows that Diogenes drew this entire section from Sotion.

later the astronomer Eudoxus was famous in Greece and the Spartans were defeated by the Athenians at Corinth when Phormio was general.[272] And at Rome M. Manlius… was convicted of starting a conspiracy to make himself king and condemned to death… In the very same year, the seventh after the recovery of the city, history records that the philosopher Aristotle was born."

Capture of Rome by the Gauls:	390 BCE[273]
Spartans defeated by Athenians at Corinth:	ca. 391
Death of Manlius/birth of Aristotle:	384

8. Diogenes Laertius, *Lives* 8.90 — 3rd century

"[Eudoxus] died at age 53."

9. Aelian, *Miscellaneous History* 7.17 — 3rd century

"When Eudoxus came to Sicily, Dionysius expressed his gratitude for his arrival; and without any flattery or stooping he replied, 'I have come as if to a fine innkeeper, with whom Plato is staying', revealing that he had come not for the former but for the latter."

10. anonymous, *Life of Ptolemy* 95.16–19 — 3rd century

"After Oenopides, Eudoxus acquired no small fame as an astronomer; he was in his prime together with the philosopher Plato and Ctesias of Cnidus, who practiced medicine and wrote history."

11. Eusebius, *Chronicle* — 4th century

A. via Jerome, *Chronicle* 115[i]

"Ol. 89.2: Eudoxus of Cnidus is considered famous."

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[272] Iphicrates, not Phormio, was the general in question.

[273] The date here is 390/89; cf. "seven years before the birth of Aristotle." Polybius' date 387/6 (*Histories* 1.6) is usually considered more accurate.

Olympiad 89.2: 423/2 BCE

B. via Jerome, *Chronicle* 118[i]

"Olympiad 97.1: the astronomer Eudoxus is noticed."

Olympiad 97.1: 392/1

C. via *Succinct Chronography* 37.4-7

"Artaxerxes Memnon, 41 years. In this time Socrates drank hemlock, Speusippus was noticed, the astronomer Eudoxus was noticed, and the philosopher Plato was in his prime."

Artaxerxes Memnon: 404–358 BCE

D. via *Chronicon Paschale* 314.12

"Olympiad 99.2: the astronomer Eudoxus was noticed."

Olympiad 99.2: 383/2 BCE[274]

E. via *Chronicon Paschale* 317.14

"Olympiad 105.4: the astronomer Eudoxus was noticed."

Olympiad 105.4: 357/6 BCE[275]

12. the *Suda*, 'Eudoxos' (*epsilon*-3429)

"Eudoxus, Aeschines' son, from Cnidus, a philosopher, age-mate of Plato."

The evidence for Eudoxus' life is quite rich, especially for an astronomer/mathematician, and this allows us to make a fairly precise

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[274] This entry falls one year before the sack of Rome by the Gauls (391/0 in Eusebius/Jerome) and so should correspond to 10.B.

[275] This entry is linked to the earthquake that destroyed Helice and Buris (380/79 in Eusebius/Jerome). Its derivation is unclear.

estimate for his lifetime.[276] Since he is generally portrayed as younger than Plato but senior to Aristotle, we may initially locate his year of birth between 424 and 385 BCE. Callimachus makes him a student of the physician Philistion of Locri (2). The one datable event in Philistion's life was his service as personal physician for Dionysius II of Syracuse in 364 (Plato (?), second *Letter* 314d), age unknown but presumably in the middle of his life. If Eudoxus was Philistion's junior, he must have been born after 410 or so.

Eudemus' account of the geometers in Plato's circle allows us to place fairly tight constraints on Eudoxus' year of birth. Eudemus likely drew his chronological ordering of these figures in large part from a study of their treatises, which would have made clear where various geometers stood in succession by virtue of the sophistication they exhibited in solving problems or codifying principles. Based on this study Eudemus was able to identify a number of geometers as either older or younger than Eudoxus. One senior figure, Leodamas, was a contemporary of Plato, Archytas, and Theaetetus, hence probably born no earlier than 430 BCE. A certain Neoclides was younger than Leodamas, and Neoclides had a student named Leon; Eudoxus was said to have been a little younger than Leon (1). Eudoxus himself had a student named Menaechmus who, because he was an acquaintance of Plato, must have been born no later than about 370 (1). If we place a minimum of ten years between each member of this succession, we get the following date ranges: Leodamas (430 or later) – Neoclides (420 or later) – Leon (410 or later) – Eudoxus (400 or later); Eudoxus (before 380) – Menaechmus (before 370). Thus Eudoxus was born between 400 and 380; combined with our previous results, this yields 400 to 385 as a range for his year of birth.

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[276] de Santillana 1940 helpfully discussed older scholarship on Eudoxus' dating. The best modern treatment of the subject is that of Huxley 1963.

The most precise information we have about Eudoxus' early life comes from the succession writer Sotion (3), who seems to have been drawing on a detailed record, perhaps a letter or autobiographical preface written by Eudoxus himself. Sotion reported that Eudoxus visited Athens some time after Socrates' death, at age 23, then traveled to the court of Nectanabis in Egypt a few months later bearing letters of introduction from Agesilaus of Sparta; he remained abroad for a year and four months, supporting himself with funds he had raised from his friends. Agesilaus' reign (400 to 360 BCE) is too long to be of use in dating this visit, but Nectanabis I ruled from 379/8 to 361/0[277]; if Eudoxus was 23 or 24 years old when he visited him, then his year of birth should fall within the period 402 to 383, which fits nicely with our previous result. Two further constraints on his age can be derived from indications that Eudoxus was still alive after Plato's death in 348 (5) and died at the age of 53 (7); if both these claims are accurate, then Eudoxus must have been born after 401. So we have 400 to 385 as a range for his date of birth, his death falling between the years 348 and 334.

This range could be made even narrower if we could date his visit to Egypt more accurately – as in fact we can. The only other mention of an embassy from Agesilaus to Nectanabis occurs in Plutarch's historical novella, *Socrates' Demon* (578f–579d). In 379 BCE, the dramatic date for the dialogue, king Agesilaus ordered the tomb of Alcmene in the Cadmeia to be opened. This unholy act brought to light a bronze tablet written in ancient, unreadable characters. Agesilaus sent an embassy to Nectanebis asking for his assistance in deciphering this archaic document, and eventually received a translation. Plutarch's description of Agesilaus' embassy contains several obvious fictions, the most glaring of which is

[277] So Lloyd 1994, 358, with an uncertainty on the order of one year. Earlier scholarship tended to place the start of his reign a bit earlier, ca. 382 BCE, but Lloyd's dates are more sound.

the participation of Plato and Simmias. (Athens at the time was supporting the Thebans in their fight against the Spartan occupation; an Athenian and a Theban would be the last people Agesilaus would have chosen for such a mission.) Still, the broader narrative of events is accurate, and a Spartan embassy at this juncture in history would make perfect sense; since Nectanebis acceded to the throne in the very same year, maintaining strong ties with Egypt would have been a matter of some importance for Agesilaus, seeing as the country played a crucial role in keeping Persia at bay. The tablet he sent him, one suspects, was intended as a diplomatic gift, not a puzzle to be solved. Now Chonouphis, the Egyptian priest whom Plutarch says interpreted the inscription, is elsewhere identified as Eudoxus' priestly contact.[278] I would suggest that Plutarch took over his account of the embassy from a reliable historical source, but replaced Eudoxus (who came from Cnidus, a Spartan ally) with the Athenian Plato in order to advance the Platonic themes of the novel.[279]

If this was the embassy Eudoxus took part in, then, given that he was about 23 years old at the time, his year of birth would be 401 or 400 BCE. It is an interesting coincidence that the latter date, combined with a lifespan of 53 years, places his death in 348, the very same year Plato died. Such an outcome would make sense if a scholar like Sotion – who had an interest in ages and lifespans – knew when Eudoxus was born and tried to pinpoint his year of death so that he could calculate how long he lived; having determined that the reference to Plato's death was the last datable event in his biography, he placed Eudoxus' death in the same

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[278] Diogenes Laertius, *Lives* 8.90, Clement, *Stromata* 1.69.1. See further Huxley 1963, 86/7, who tentatively makes the same connection between Eudoxus' visit and the embassy dispatched by Agesilaus.

[279] I would like to thank Victor Gysemberg for pressing me to clarify the argument here.

year, and then counted back to his year of birth to establish a 53-year lifespan. If this scenario is accurate, it is possible that Eudoxus actually lived to be a bit older than 53. It is also possible that he was born a year or two later than 400/399, had there been a delay between Agesilaus' recovery of the tablet and his dispatching of the embassy to Egypt. Accordingly we may place his year of birth in 400 or shortly thereafter, and his year of death in 348 or a bit later.[280]

The three Olympiad datings for Eudoxus' acme preserved by late sources exhibit remarkable discrepancies both with the dates just established and with each other. A Roman authority quoted by Gellius – probably Cornelius Nepos – put Eudoxus' prime "just after" (*neque multo postea*) 390 BCE (7; cf. 11.B); Diogenes set it in the 103rd Olympiad (368 to 364) (4); and a report in Eusebius/Jerome gives the precise and remarkably early dating Olympiad 89.2, or 423/2 (11.A). They clearly represent three different scholarly attempts to establish Eudoxus' dates. Since all three are Olympiad datings in post-Apollodoran sources, it would be natural to assume that one of these datings represents Apollodorus' original, while the other two arose through misunderstandings or errors of some kind. The problem with this hypothesis is that it is impossible to derive any two of these datings from the third in any obvious way. None of the intervals between them – ca. 34 to 36 years from the oldest to the middle date, ca. 23 to 29 years from the middle to the latest date, and ca. 56 to 52 years from the oldest to the latest – constitutes a number of the sort that typically arise from misunderstandings, e.g. 40 years. As an alternative we might posit that Apollodorus provided, not a precise date for Eudoxus' acme, but a verbal synchronism. Several sources refer to him as Plato's companion, peer, or contemporary (1, 3, 5, 9, 12; cf. *Scholia on Euclid's Elements*,

[280] von Fritz 1930 established similar dates (500 to 347 BCE) by simply adding Eudoxus' 53-year lifespan to Plato's year of death.

book 5, page 282 Heiberg), and one (10) expressly says that Eudoxus reached his acme at the same time as Plato. In the three late datings I would suggest we are dealing with three different attempts to convert an Apollodoran verbal synchronism – something along the lines of "Eudoxus was in his prime at the same time as Plato" – into Olympiad dates.

Let's start with Jerome's statement that Eudoxus was "famous" in 423/2 BCE. This date seems off by about three or four decades – a clear indication that a Greek label with the sense 'was noticed' has replaced one meaning 'was born' through confusion about the meaning of the verb γέγωνε. If we hypothesize an original Greek report that Eudoxus was *born* in 423/2, he would have been born just two years after Plato, according to Jerome, who dates Plato's birth to 425/4. The match, while not perfect, points to a near synchronism of the two philosophers.[281] Next, Gellius' entry puts Eudoxus' acme in one of the years immediately following 390, and a related notice in Jerome (10.B) associates it with the 97th Olympiad (392–388). Together these two clues tell us that Eudoxus was age 40 in 389. This would mean that he was born in 428 – the Apollodoran date for Plato's birth. Finally Diogenes, on the supposed authority of Apollodorus, placed Eudoxus' acme more than two decades later, in the 103rd Olympiad, the quadrennium 368–364. Although no ancient source sets Plato's prime so late, Diodorus Siculus has an entry for Olympiad 103.3, 366, which reads (15.76.4):

> "Also around during this time were several men noteworthy for their culture: the rhetorician Isocrates and his students, the philosopher

[281] Note that many of the entries in this part of Jerome's *Chronicle* are off by a few years: Plato's death is dated 3 years too late (115g), the Peace of Nicias 3 years too early (115h), the disastrous end of the Sicilian expedition 3 years too early (116a), and Alcibiades' defection is 1 year early (116b).

> Aristotle, Anaximenes of Lampsacus, Plato of Athens, the last of the Pythagorean philosophers, the historian Xenophon – who was very old, since he mentions the death of Epaminondas, which took place a little later – Aristippus, Antisthenes, and finally, the Socratic Aeschines of Sphettus."

Eudoxus' name does not appear in this list of celebrities from 366, yet Plato's presence in it, when combined with the assumption that he and Eudoxus "were in their prime at the same time" (10), could easily have spawned a dating of Eudoxus to the period 368–364. If this reconstruction is correct, then the ultimate source for these Olympiad dating reports was a verbal synchronism in Apollodorus that somehow equated Eudoxus' prime year with Plato's. This putative synchronism was probably meant to be a loose one; the Olympiad datings give the impression, however, that the synchronism was quite precise.

This hypothesis about the expression of Eudoxus' date also allows us to explain a remarkable report preserved by Strabo to the effect that Eudoxus spent 13 years in Egypt with Plato trying to elicit a precise figure for the length of the year from the Egyptian priests (5). It is hard to square this claim with the biographical evidence for Eudoxus quoted above – Sotion expressly limited Eudoxus' sojourn in Egypt to one year and four months. The key to understanding its origins, I think, is to recognize that it is first and foremost a statement about Plato's biography which applies to Eudoxus only by accident. Hermodorus reported that at age 28 Plato went on a trip that took him to Megara, Cyrene, and Italy, and culminated in a visit to Egypt to visit the prophets (PLATO 3). While Hermodorus' original statement was likely an overview of journeys Plato made throughout his life, in compressed form it could give the impression that Plato made a single grand tour. Now there are no datable events in Plato's biography between this journey at age 28

and his first Sicilian adventure at age 40.[282] A confused recollection of these facts could thus result in the claim that Plato traveled to Egypt when he was 28 and did not return to Athens until he was 40 – hence, a 13-year sojourn in the land of the Pharaohs. Since Eudoxus also visited Egypt around the same time and was an associate of Plato's, it is not hard to see how a story of their joint mission might have arisen. If Plato spent 13 years there, then by the logic of this confabulated anecdote it ought to follow that Eudoxus did so as well.

The currently received dating for Eudoxus, which has him being born in 390 BCE and passing away around 337, rests on treatments by de Santillana and Lasserre; the fact that these scholars arrived at the same dating by two very different lines of reasoning ought to count as a point in its favor.[283] However, the arguments advanced to support these dates are not very compelling. De Santillana sought to place Eudoxus' visit to Egypt by finding an occasion when it would have been in Agesilaus' political interest to send an embassy to the pharaoh.[284] Based on various strategic considerations he identified 365 as the earliest date. While his reconstruction of events is plausible enough, no such Egyptian embassy is actually mentioned in our sources; the embassy of ca. 378 is the only one to be described; and nothing in his argument actually precludes an earlier date for the journey. He also attempted to place it in time based on the physician Chrysippus' participation; but the evidence for the identity and dating of the various physicians named Chrysippus is confused, and offers few secure constraints on Eudoxus' lifetime. All we know for sure about the oldest Chrysippus, the son of Erineus, is that he was a student of Eudoxus in natural philosophy and of Philistion in

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[282] See e.g. Nails 2002, 247/8.
[283] de Santillana 1940, Lasserre 1966, 137–139; recently reaffirmed by Zhmud 1998, 228, and Schneider 2000, 297.
[284] de Santillana 1940, 254–260.

medical matters; he was also, on one common reading of an ambiguous text, the grandfather of a Chrysippus son of Aristagoras who taught Erasistratus in the 280's (Diogenes Laertius, *Lives* 8.89, 7.186).[285] If the grandson Chrysippus was born in the 320's or 330's to a father, Aristagoras, who was born in the 350's, 360's, or 370's, then the grandfather Chrysippus' birth could fall anywhere from the 420's to the 370's, a range that is consistent with his being a companion of Eudoxus, but does little to narrow the latter's date.

Lasserre attacked the problem by seeking to identify the precise year when the Socratics whose fame inspired Eudoxus to visit Athens became well known. In the passage from Diodorus quoted above a number of followers of Socrates are named: Plato, Xenophon, Aristippus, Antisthenes, and Aeschines. On this basis Lasserre argued that 366 should be the relevant year for Eudoxus' first visit to Athens – though corrected to 368/7 on the grounds that that was when Aristotle began studying at the Academy (PLATO 10). If Eudoxus first visited Athens in 368, at the age of 23, then he would have been born in 390. Now it is true that this reconstruction allows us to account for the Apollodoran dating in Diogenes if the phrase 'was in his prime' is regarded as a mistake for 'was noticed' i.e. at age 23. However, the assumption that the Socratics only became "famous" in 366 or 368 and started attracting pupils then is quite naïve. (The date for the 'fame' of the Socratics in Eusebius/Jerome, 397, is equally if not more plausible (118[d]).) The entry in Diodorus is clearly a period dating, a year when all the figures listed were alive but not necessarily in their prime or undertaking any notable activities. Lasserre's preference for 368 also rests on a (common) misreading of the *Vita Marciana* of Aristotle which I have detailed

[285] See Berrey 2014 for a lucid treatment of this subject.

above.[286] The doings of Agesilaus and Nectanabis furnish a much sounder framework for establishing Eudoxus' chronology.

Estimated objective dates:

soon after 400 BCE:	born
soon after 378:	visits Athens and Egypt
360's, 350's:	heads school in Cyzicus
after 348:	dies

[286] See page 202, note 260.

3

CASE STUDIES, II: ANAXIMANDER AND ANAXIMENES

We now turn to the two Milesians, Anaximander and Anaximenes. In the present chapter I will show that their lifespans fall substantially later than the Standard Dating would have it. Although divided into two separate discussions, one for each thinker, the argument for moving their dates downward forms, in effect, a single whole. The early, pre-Apollodoran evidence for the times of the Milesians is imprecise but unambiguous. At its core stands an Ionian teacher-student succession, originally sketched out by Theophrastus, which runs Thales–Anaximander–Anaximenes–Anaxagoras. Since Thales' life extended into the 540's BCE, while Anaxagoras' 'student years' began in 480, the lifespans of Anaximander and Anaximenes should bridge this gap, with Anaximander's adult years falling in the second half of the sixth-century, and Anaximenes' straddling the divide between the sixth- and fifth-centuries. Hellenistic scholars like Sotion and Antisthenes took this succession as a given and clearly accepted the timeline which it implied.

The dates for Anaximander and Anaximenes that are ascribed to Apollodorus point to the same chronology – save for one discrepancy: the reported Olympiad for Anaximander's 64th year falls 49 years earlier

than one might expect. And as it happens, all of the Olympiad dates for the two Milesians found in later sources – Pliny, Hippolytus, Eusebius, and the *Suda* – have both men living in the early-to-mid sixth century. The Olympiad reports for Anaximander place his birth in 610 BCE and his 64th year in 547; those for Anaximenes, while exhibiting more variation, set his prime years somewhere in the middle of the sixth-century. The Standard Dating is in effect nothing more than a modern restatement of the Olympiad dates preserved in these sources. Since this chronology makes any personal relationship between Anaximenes and Anaxagoras impossible, Theophrastus' testimony is usually dismissed.

Faced with a choice between the pre-Apollodoran tradition and the late Olympiad reports, we ought to prefer the former. Not only were Theophrastus and the Hellenistic scholars closer to the events in question, and more likely to have access to the original texts, they were also the kinds of authorities Apollodorus himself would have relied on when compiling his timeline. But just as one should not dismiss Theophrastus' chronology without asking how he might have come by his mistaken beliefs, so it is important that we respect the late sources and find some credible explanation for how their misdatings arose. The key to doing so is recognizing that they all go back to a verbal indication from Apollodorus' text. Apollodorus reportedly linked Anaximander's 64th year to a sack of Sardis, and identified the same sack as an important date in Anaximenes' life. The sack Apollodorus had in mind was the one that took place during the Ionian revolt, in 499 BCE; once that identification is made, the resulting dates nicely accommodate the Theophrastan succession. But the Olympiad datings, as I will show, are founded on the assumption that the sack in question was the one conducted by Cyrus' armies in 547, after the fall of Croesus. One of Apollodorus' early epitomators was apparently responsible for the switch, which made its

presence felt in many late texts, and generated the Olympiad dates on which the Standard Dating rests.

Proposing changes to an accepted chronology is not to be done lightly. Not only is it necessary to confront the formidable erudition and analytic prowess that past scholars brought to bear on the question; one must also acknowledge that the proposed revisions can have significant consequences for our understanding of the evolution and transmission of ideas. This is particularly true in the case of Anaximenes, who on my reconstruction goes from being a precursor of the natural philosophers who were active at the end of the sixth-century – of persons like Xenophanes, Heraclitus, and Parmenides – to serving as their heir, accepting, rejecting, or otherwise responding to their ideas. In fact, a feeling that the quality of Anaximenes' thought was a little too 'advanced' for the mid sixth-century was what originally inspired me to investigate the chronological evidence and so begin work on this book. While it is impossible for me to do justice to all of the relevant material here, I will outline at the end of this chapter how this shift restores credibility to some features of Anaximenes' physics that have heretofore seemed anachronistic, such as his material monism, and his account of the origin of earthquakes.

ANAXIMANDER OF MILETUS

1. Theophrastus 4th century BCE

A. via Simplicius, *On Aristotles's Physics* 24.13

"Of those who say [the basic principle] is one, moving, and infinite, there was Anaximander of Miletus, son of Praxiados, the successor and student of Thales."

similiar: Cicero. *Academica* 2.118, Hippolytus, *Refutation of All Heresies* 1.6, etc.

B. via Diogenes Laertius, *Lives* 9.21
"Parmenides son of Pyres heard Xenophanes teach. (In his *Epitome* Theophrastus says that the former [i.e. Parmenides] heard Anaximander teach.) But although he heard him teach, he did not follow him."

C. via the *Suda* 'Parmenides' (*pi*-675)
"Parmenides son of Pyrus was a student of Xenophanes, and, as Theophrastus says, of Anaximander of Miletus."

2. Sotion, *Successions* 2nd century
via Diogenes Laertius, *Lives* 9.18
"Xenophanes lived at the same time as Anaximander, says Sotion."

3. Apollodorus, *Chronicle* 2nd century
via Diogenes Laertius, *Lives* 2.2
"[Anaximander] made a summary exposition of his opinions which Apollodorus of Athens happened to stumble upon somewhere. Apollodorus says in his *Chronicle* that Anaximander was 64 years old in the second year of the 58th Olympiad and died a little later, having reached his prime roughly when Polycrates was tyrant of Samos."
Olympiad 58.2: 547/6 BCE

4. Diodorus of Ephesus Hellenistic?
via Diogenes Laertius, *Lives* 8.70
"Writing about Anaximander, Diodorus of Ephesus says that Empedocles emulated him, practicing a tragic actor's pomposity and adopting a solemn mode of dress."

5. Apollonius son of Molon(?) 1st century(?)

via Porphyry, *Life of Pythagoras* 2
"Pythagoras heard the teaching, not just of Pherecydes and Hermodamas, but also of Anaximander, as Apollonius says."
Similar: Iamblichus, *The Pythagorean Life* 11, Apuleius, *Florida* 15.20

6. Pliny the Elder, *Natural History* 2.31 1st century CE
"Anaximander of Miletus [began discussing the ecliptic] in the 58th Olympiad."
58th Olympiad: 548–544 BCE

7. Hippolytus, *Refutation of All Heresies* 1.6.7 3rd century
"[Anaximander] was around in the third year of the 42nd Olympiad."
Olympiad 42.3: 610/9 BCE

8. Eusebius, *Chronicle* 4th century
A. via Jerome, *Chronicle* 101b[g]
"Olympiad 51.1: the natural philosopher Anaximander of Miletus is noticed."
Olympiad 51.1: 576/5 BCE

B. via Cyril of Alexandria, *Against Julian* 522a
"In the 50th Olympiad the seven Wise Men are noticed, as is the natural philosopher Anaximander of Miletus."
50th Olympiad: 580–576 BCE

C. via Augustine, *City of God* 18.25
"In the era of the Jewish Captivity, Anaximander, Anaximenes, and Xenophanes were famous."
Babylonian captivity: ca. 600 to 539 BCE

9. John Malalas, *Chronography* 158.16 6th century
"During the era of the reign Darius, son of Cyrus (sic), Anaximander was practicing philosophy among the Greeks. He said that the earth was in the middle of the entire cosmos and the sun was no smaller than the earth, and that the basic principle of all things is air (sic); all things are made from it and all dissolve back into it."
Darius: 522 to 486 BCE

The early evidence for Anaximander's biography suffices to make a rough estimate for his lifetime. The most important testimony comes from Theophrastus, who described Anaximander as Thales' student – a claim consistent with his being born anywhere from 610 to 550 BCE, given that we do not really know when Thales died (1.A). He also characterized Anaximander as Anaximenes' teacher, and Anaximenes as Anaxagoras' (see ANAXIMENES 1.A, B, below). Let us start with our precise knowledge of Anaxagoras' birth year (born in 499/8) and ask what this tells us about Anaximander's, given that Anaximenes must fall in between the two. If the gap in age between teacher and student was as small as possible in both cases, say 10 years, then Anaximander's birth would fall in 520 and his prime in 480. If the gap was closer to 40 years in both cases, then he would be born around 580 and in his prime in 540. So the Theophrastan succession tells us that Anaximander's prime years fell within the period 540 to 480. Theophrastus made the further claim that Parmenides heard Anaximander teach, which would indicate that the latter was alive in the 490's or even later (1.B, C). The succession-writer Sotion recorded that Anaximander was a contemporary of Xenophanes; the latter, as we saw, was alive between ca. 565 and ca. 475 (2). If all we had to go on were these pieces of evidence, we might follow Sotion and assign Anaximander roughly the same dates as Xenophanes, say, 565 to 480.

Now let us consider the Standard Dating, which has Anaximander being born in 610 BCE and reaching age 64 in 547 on the supposed authority of Apollodorus. This dating reflects Diels' interpretation of the evidence from the post-Apollodoran tradition. Diels began his analysis by noting the anomaly of Apollodorus' identifying the year in which Anaximander reached age 64, rather than age 40 (3).[287] To explain this he adverted to a report in Diogenes Laertius that Apollodorus had come across a summary exposition of Anaximander's opinions. Diels concluded that this text contained an autobiographical passage in which Anaximander described himself as age 64 at the time of some historically datable event that took place in our year 547/6. From this datum Apollodorus calculated backward and placed Anaximander's birth in the year 610. The Olympiad dates found in Hippolytus for his year of birth and in Pliny for the year of a major discovery (6, 7) seem consistent with this assumption. Taking this timeline as given, Diels then undertook to explain why Diogenes attributed to Apollodorus the claim that Anaximander was in his prime during the period of Polycrates' tyranny (3). He argued that this report represents a stray item from the life of Pythagoras – that Diogenes or his source had somehow transferred a claim about Pythagoras' prime into Anaximander's biography.

Diels' reconstruction makes it possible to harmonize the Olympiad datings found in Diogenes, Pliny, and Hippolytus; his hypothesis that Apollodorus discovered biographical data in his treatise has also persuaded many scholars.[288] However, his dismissal of the synchronism with Polycrates is much less convincing: it is hard to imagine what sort of process could lead to a snippet of Pythagoras' biography lodging itself in Anaximander's, since they are nowhere near each other in Diogenes'

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[287] Diels 1876, 24/5.

[288] Starting with Burnet 1908, 53, and Heidel 1921, 254.

text (book 2 versus book 8). There is also a serious conflict, one Diels and Jacoby did not address, between the 610–546 BCE dating and the evidence for Anaximander's lifetime found in Theophrastus and Sotion. Implicit in this preference is the judgment that Apollodorus was somehow better informed than Theophrastus about the Milesian's chronology; but what the basis might be for this superior knowledge is unclear. These problems are, I think, sufficiently stark to make an alternative reconstruction of the evidence desirable. The goal is to devise an interpretation which (a) leaves intact the teacher-student relationships between Thales, Anaximander, Anaximenes, and Anaxagoras, (b) accommodates the early evidence which places his mature years in the second half of the sixth-century, (c) preserves the synchronism of Anaximander's floruit with Polycrates' reign, and (d) explains how the late Olympiad dates originated. All four of these challenges can be met if we postulate that a simple error was made when Apollodorus' data was converted into Olympiads.

Diels himself recognized that a mistake must have crept into the tradition somewhere between Apollodorus and Diogenes; for according to the latter's testimony (3), Apollodorus placed Anaximander's floruit (in the reign of Polycrates) *after* his 64th year (in 547/6 BCE) – but of course, one turns 40 *before* one turns 64. While Diels blamed the introduction of a bit of text from the life of Pythagoras, such a corruption seems unlikely. So let us suppose that a different sort of mistake was made. We know that some authority, such as Sosicrates, must have converted Apollodorus' dating language into Olympiad format. According to this authority, Anaximander's 64th year fell in the year 547/6. This happens to be the year of an epochal event in archaic Greek history, the capture of Croesus' Sardis by the Persians. Since Apollodorus was in the habit of identifying years through synchronisms, it seems very likely that he made a link in his text between

Anaximander's 64th year and the sack of Sardis, for which the anonymous converter then gave the Olympiad date. This suggestion of a dating based on the sack was first made by John Burnet, and has been widely endorsed ever since.[289]

The complicating factor is this. In 499/8 BCE, forty-nine years after the first capture of Sardis, the city was sacked again by a large force of Ionian rebels, including a contingent of Athenians, who raided the city and started a fire that burned down everything except for the acropolis (Herodotus, *Histories* 5.100). This act lived on in memory due to its consequences: Herodotus states several times that it was seen by the Persians as a *casus belli* for their invasion of mainland Greece.[290] Now it has just been argued that Apollodorus connected Anaximander's 64th year with a "sack of Sardis." Which sack was Apollodorus referring to? Diels and Jacoby claimed that Apollodorus never referred to the Ionian sack, only mentioning the Persian one; but this assertion goes far beyond the available evidence. Since all that survives of this part of Apollodorus' poem are some nine lines dealing with Empedocles and a dozen brief paraphrases, we are really in no position to make strong negative claims about Apollodorus' dating conventions. In fact, an exception to this rule is not hard to come by: the entry in the *Suda* (*xi*-9) for the historian Xanthus of Lydia says he was "born at the time of the capture of Sardis"; since Xanthus was still alive in the 440's, the reference must have been to the event of 498. Diogenes Laertius reports an Apollodoran dating for Anaximenes that ties his death to a "sack of Sardis" which, in the transmitted text, occurred *after* the years 528–524 (ANAXIMENES 3, below). Conversely, no surviving text demonstrates unambiguously that

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[289] Burnet 1908, 53.

[290] Herodotus, *Histories* 5.102.1, 5.105, 6.101.3, 7.8b; 5.97.3, beginning of the troubles; Aristotle, *Posterior Analytics* 2.11, 94a36.

Apollodorus himself deployed the Persian sack as a temporal marker.[291] The road which Diels and Jacoby declared impassable is actually open; so let us see where it leads us, that is, let us postulate that the converter gave the Olympiad year for the first sack rather than the second, and in doing so made a mistake.

In this scenario what Apollodorus apparently intended to communicate was that Anaximander reached his 64th year in 499/8 BCE, hence was born in 562/1. Anaximander would accordingly have been in his prime in 523/2, the last year of Polycrates' tyranny – right where the text of Diogenes places it. There is no longer any problem with Diogenes' text, no stray datum; the mistake lay with the Olympiad date, which was incorrectly determined. Pliny and Hippolytus gave their dates for Anaximander's life following the same faulty tradition.

Dating Anaximander's first 64 years to the period 562 to 499 BCE allows us to fully accommodate our pre-Apollodoran dating clues. Anaximander could have heard Thales' teach if we assume that the latter lived a few years after the death of Croesus in 546. If Anaximander taught Anaximenes in the decades after 520, and Anaximenes taught Anaxagoras after 480, then the Theophrastan succession is preserved. (A dating for Anaximenes consistent with this timeline will be proposed in

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[291] To buttress his claim that Apollodorus never used the Ionian sack as an epoch, Jacoby 1902, 193.n2, cites four texts. The first two are the passages in question, ANAXIMENES 2 and ANAXIMANDER 4. The third is THALES 4: "he died at age 78 – or, as Sosicrates says, at age 90 – since he died in the 58th Olympiad, a contemporary of Croesus, for whom he undertook to cross the Halys without using bridges by diverting its current"; the fourth is Diogenes Lives, *Lives* 1.95: "Sosicrates says Periander died 41 years before Croesus, three years before the 49th Olympiad." In the last two the only named source is Sosicrates, not Apollodorus, and the epoch is defined by Croesus' last years – neither text explicitly mentions the sack. The examples constitute a weak foundation for such a strong negative argument.

the next section.) The encounter between Parmenides and Anaximander mentioned by Theophrastus (1.B, C) would be impossible if the latter had died around 540, but a twenty-something Parmenides could easily have heard a 60 or 70-year old Anaximander read his treatise during the 490's. Finally, if Anaximander was born in 562, he would be very close in age to Xenophanes, born around 565, which nicely validates Sotion's claim that the two men were contemporaries (2).

Two other pieces of chronological evidence also make better sense if we assume a late dating for Anaximander. A writer named Diodorus of Ephesus maintained that Empedocles imitated Anaximander, copying in particular his manner of dress – a detail which implies a face-to-face encounter (4). On the Standard Dating, a meeting between the two can be absolutely ruled out. According to the dating given here, the meeting becomes a chronological possibility, assuming that Anaximander lived to age 80. Since this Diodorus is otherwise unknown and no other source attests to the relationship, a meeting seems unlikely. However, like the synchronism with Pythagoras, the anecdote constitutes yet another piece of evidence that Hellenistic scholars extended Anaximander's life down to the decades of the Persian wars. A second witness which to the best of my knowledge has never been taken into account is the idiosyncratic world history of the chronicler John Malalas (9). Malalas places Anaximander's prime years in the reign of Darius; he does not give a specific year, but the philosopher's activity is the very first event associated with the king's reign. Darius' rule began in 522 BCE, the same year that Polycrates' died; if this was the year of Anaximander's floruit, then he was born in 561. The dating for Anaximander proposed here seems to have made its way into Malalas' text.

A late dating for Anaximander allows us to accommodate another seemingly unrelated bit of literary history: the well attested claim that

Pherecydes of Syros was the first Greek to write a treatise in prose.[292] Apollodorus placed Pherecydes' floruit in 541 BCE.[293] If Anaximander's book contained a reference to events in 547/6, one would expect to find sources claiming that Anaximander was the first prose writer. The only author who comments on Anaximander's literary originality, Themistius (*Oration* 26, 317c), says merely that Anaximander was the first to write a treatise in prose *about nature*. Otherwise, Pherecydes' claim to be the first prose writer is unchallenged. This consensus makes sense if Anaximander was thought to have published later – say, in 499.

This chronology also casts Anaximander's association with the geographer Hecataeus of Miletus in a new light. Hecataeus was active in Ionian politics around 510–490 BCE; in a list of early geographers, Eratosthenes placed Anaximander before him.[294] The Standard Dating suggests that Anaximander published his world-map around 550 or 540, and that another 30 years passed before Hecataeus composed a verbal account of Mediterranean peoples and cities which, when used in conjunction with Anaximander's map, made it more practical and precise. The proposed dating for Anaximander would make the two geographers contemporaries, both active in Miletus during the last two decades of the 6th century. Their work should accordingly be pictured as a collaboration: Anaximander drew a map on a tablet which outlined the large-scale structure of the inhabited world, while Hecataeus wrote up a catalogue of places with commentary which made the map come alive.

The choice between Diels' reconstruction of Anaximander's Apollodoran dates and the one proposed here can be framed in terms of a simple question: in the text of Diogenes –

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[292] Pliny, *Natural History* 7.205, Apuleius, *Florida* 15, Diogenes Laertius, *Lives* 1.43, 116.

[293] Schibli 1990, 1/2. See above, page 93.

[294] Strabo, *Geography* 1.1.11; cf. Agathemerus, *Outline of Geography* 1.1.

> "Apollodorus says in his *Chronicle* that Anaximander was 64 years old in the second year of the 58th Olympiad (547/6 BCE) and died a little later, having reached his prime roughly when Polycrates was tyrant of Samos (530 to 522)"

where does the error lie? If it lies in the synchronism with Polycrates, as Diels maintained, then Anaximander's 64th year fell in 547, and he was born in 610. But this means downplaying or denying –

> Theophrastus' report that Parmenides heard Anaximander teach;
> Sotion' synchronism of Anaximander with Xenophanes;
> Diogenes' explicit claim that, according to Apollodorus, Anaximander was in his prime in the time of Polycrates;
> Diodorus' claim that Empedocles aspired to copy Anaximander;
> Malalas' placement of Anaximander's prime in the time of Darius;
> the claim that Pherecydes of Syros authored the first work of Greek prose.

Alternatively, one may postulate that the error resulted from a confusion between the Persian capture of Sardis in 547 and the Ionian capture of Sardis in 499, one which led to an eccentric, early dating. This hypothesis allows us to accept the testimony of the witnesses just listed, while making the following mistakes intelligible:

> the Olympiad dating which Diogenes attributes (misleadingly) to Apollodorus;
> the Olympiad dating found in Pliny;
> and the Olympiad dating found in Hippolytus.

The first list contains our earliest authorities, who have value as independent witnesses, since they cannot be derived from one another. The sources in the second list are all relatively late; they are also correlated, which is to say that all three passed through the hands of an individual who converted Apollodorus' dates into Olympiads. Faced with a choice between these alternative reconstructions, it seems to me obvious which one is correct.

If the original Apollodoran dating placed Anaximander's birth in our year 562 BCE, then it is not hard to explain how the Eusebian date for Anaximander's recognition, 576/5 (8.A; cf. 8.B), arose. The two dates fall near the middle of the sixth-century and are separated by a 15-year interval – classic features of the 'Xenophanes gap'.[295] The entry has also been misidentified as a prime year rather than a year of birth, following the common confusion about the relevant sense of the verb γέγωνε.

ANAXIMENES OF MILETUS

1. Theophrastus 4th century BCE

A. via Simplicius, *On Aristotle's Physics* 24.26

"Anaximenes of Miletus, the son of Eurystratus, who was a companion of Anaximander..."

similar: Strabo, *Geography* 14.1.7, Diogenes Laertius, *Lives* 2.3, Eusebius, *Preparation for the Gospel* 10.14.12, etc.

B. via Simplicius, *On Aristotle's Physics* 27.2

"Anaxagoras of Clazomenae, the son of Hegesibulus, after sharing Anaximenes' philosophy, became the first to revise opinions about basic principles and fill in the missing cause..."

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[295] See pages 69/70.

similar: Cicero, *The Nature of the Gods* 1.11, Harpocration, *Lexicon* A-119, Diogenes Laertius, *Lives* 2.6, etc.

2. Antisthenes, *Successions* 2nd century
via Diogenes Laertius, *Lives* 9.57
"Diogenes of Apollonia heard Anaximenes teach, Antisthenes says, and he lived at the same time as Anaxagoras."
For the Anaximenes-Diogenes link, cf. Clement, *Protreptic* 5.64.2, Augustine, *City of God* 8.2.

3. Apollodorus of Athens, *Chronicle* 2nd century
via Diogenes Laertius, *Lives* 2.3 (transmitted text)
"Anaximenes was born, as Apollodorus says, in the 63rd Olympiad and died around the time Sardis was captured."
63rd Olympiad: 528–524 BCE

4. anonymous epistolographer Hellenistic(?)
A. via Diogenes Laertius, *Lives* 2.5
"Anaximenes to Pythagoras: Out of all of us, you made the best plan when you left Samos for Croton, where you have peace. The sons of Aeaces are committing unforgiveable atrocities, and the Milesians never run out of tyrants. Another threat we face is the king of the Medes – less a threat, if we were willing to pay our tribute. The Ionians are going declare war on the Medes on behalf of the common freedom; once that happens we will no longer have any hope of safety. How then could Anaximenes take it into his head to study the heavens when he is so afraid of annihilation or slavery?"
B. via Diogenes Laertius, *Lives* 2.4
"Thales son of Examyas has unfortunately passed away in his old age. At night he left his yard with his maid to observe the stars like he usually

did, and, since he was not mindful, while he was observing he stepped off a cliff and fell. So the Milesians' astronomer has met quite an end. We his students should remember the man, as should our children and students, and pass on his teachings in succession. The opening of every disquisition should be devoted to Thales."

5. anonymous novelist, *Papyrus Berolinensis* 7927 1st century BCE?
"All marveled at his boldness and Polycrates of his words… said 'Child, time to drink… must painful things… we have leisure..' Looking at Anaximenes he said…"

6. Strabo, *Geography* 14.1.36 1st century CE
"One famous man from Clazomenae was Anaxagoras the natural philosopher, the companion of Anaximenes of Miletus."
similar: Eusebius, *Preparation for the Gospel* 10.14.12 ("acquaintance of Anaximenes")

7. Diogenes Laertius, *Lives* 2.3, 6 3rd century
A. "Anaximenes the son of Eurystratus was from Miletus; he heard Anaximander teach, and some say he heard Parmenides teach as well."
B. "Anaxagoras the son of Hegesibulus or Eubulus was from Clazomenae. He heard Anaximenes teach."

8. Hippolytus, *Refutation of All Heresies* 1.7.8 3rd century
"Anaximenes was in his prime about the first year of the 58th Olympiad"
Olympiad 58.1: 548/7 BCE

9. pseudo-Galen, *History of Philosophy* 599.3 4th century(?)
"Anaximander made Anaximenes the next aspirant to this sect, then prepared him to be the instructor of Anaxagoras."

10. Eusebius, Universal History 4th century

A. via Jerome, *Chronicle* p. 102b[f]

"Olympiad 55.1: the natural philosopher Anaximenes receives notice."

Olympiad 55.1: 560/59 BCE

B. via Augustine, *City of God* 18.25

"In the era of the Jewish Captivity, Anaximander, Anaximenes, and Xenophanes were famous."

Babylonian captivity: ca. 600–539 BCE

11. the *Suda* 'Anaximenes' (*alpha*-1988) 10th century

"He was alive in the 55th Olympiad during the capture of Sardis, when Cyrus the Persian took down Croesus."

55th Olympiad: 560–556 BCE

Three of the chronological indications for Anaximenes' life predate Apollodorus. First is the oft-cited report, going back to Theophrastus, that Anaximenes was a student and companion of Anaximander (1.A, 7, 9). If the threshold age for being a teacher is 40, and the minimum age for being a student is 20, then we can infer from the dates for Anaximander just established that Anaximenes must have been born after 540 BCE. Second, Theophrastus also reported that Anaxagoras was a student of Anaximenes, "sharing" in his mentor's studies at the start of his career (1.B, 6, 7, 9).[296] Since Anaxagoras had developed his own

[296] That the relationship between Anaxagoras and Anaximenes was personal is suggested by the language of association and instruction found in Strabo (ὁμιλητής), Diogenes Laertius (ἤκουσεν), and Harpocration (μαθητής). It is true that Theophrastus, as reported by Simplicius (*On Aristotle's Physics* 27.2), used a circumlocution – Anaxagoras initially "shared Anaximenes' philosophy" – which

philosophical system by the 460's, the period of mentoring must have fallen between 480 and 470, which means, based on the same assumptions about minimum ages, that Anaximenes was born before 500. Finally the succession writer Antisthenes (ca. 200) indicated that Anaximenes taught Diogenes of Apollonia (2); the dates for the latter are not narrowly fixed, but he appears to have been born around 490 and to have developed his own ideas after 450. These early, non-Apollodoran traditions indicate quite clearly that Anaximenes was born between 540 and 500.

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lacks the language of personal association and might seem to imply that the younger philosopher adopted Anaximenes' ideas after studying the books of a man who was already dead. However, the underlying reason for Theophrastus' choice of that particular phrase becomes clear if one compares the similarly-phrased claim about Leucippus which occurs a page later in Simplicius, and is also Theophrastan in origin:

> Ἀναξαγόρας μὲν γὰρ Ἡγησιβούλου Κλαζομένιος, κοινωνήσας τῆς Ἀναξιμένους φιλοσοφίας, πρῶτος μετέστησε τὰς περὶ τῶν ἀρχῶν δόξας καὶ τὴν ἐλλείπουσαν αἰτίαν ἀνεπλήρωσε.
>
> Λεύκιππος δὲ ὁ Ἐλεάτης ἢ Μιλήσιος (ἀμφοτέρως γὰρ λέγεται περὶ αὐτοῦ) κοινωνήσας Παρμενίδῃ τῆς φιλοσοφίας, οὐ τὴν αὐτὴν ἐβάδιζε Παρμενίδῃ καὶ Ξενοφάνει περὶ τῶν ὄντων ὁδόν, ἀλλ' ὡς δοκεῖ τὴν ἐναντίαν. (LEUCIPPUS 1.B, *On Aristotle's Physics* 28.4)

In both cases initial allegiance to the teacher's doctrines was followed by a sharp divergence in approach. The purpose of the phrase "after sharing his philosophy" is to point this contrast, not to deny personal acquaintance or hint at a temporal gap. (The lives of Leucippus and Parmenides overlapped by several decades.) Strabo, Diogenes, Harpocration, and the sources on whom they drew understood the relationship to be personal, and Theophrastus' claim offers no grounds for interpreting it otherwise. I am grateful to Jaap Mansfeld for pushing me on this point.

The Standard Dating not only places Anaximenes much earlier, it also registers considerable variation and uncertainty about his dates. At the root of the confusion is the way Diogenes reports the Apollodoran dating of Anaximenes: as transmitted by our manuscripts, it says that the philosopher was born in the 63rd Olympiad (528 to 524) and died around the time of the capture of Sardis (3). Diels began his analysis of this report by ruling out the possibility that Apollodorus was referring to the Ionian sack of Sardis, on the grounds that the chronographer did not use it as an epochal date; accordingly the reference must be to the capture of Sardis by the Persians in 547.[297] So interpreted, the text places Anaximenes' birth in 528–524 and his death two decades *earlier*, in 547. Because this is impossible, Diels postulated that the text had been corrupted. As a remedy he proposed swapping the verbs in the two clauses to obtain the reading, "He was born, as Apollodorus says, around the sack of Sardis, and died in the 63rd Olympiad," that is, his life ran from 547 to 528.[298] While the order of birth and death is now correct, this gives the philosopher a lifespan of less than 20 years. To correct this new problem, Diels claimed that the verb γεγένηται should bear the meaning 'was in his prime': Anaximenes was not "born" around 547, but "was alive" then, meaning "was in his prime." From this it would follow that he was born in 586, and that he died about sixty years later.

Diels considered these manipulations necessary because they brought Diogenes' text into line with three others that contain specific Olympiad dating. First is that of Hippolytus (8), who placed Anaximenes' prime in 548/7 BCE, one year before the Persian sack. (To make the two texts agree perfectly, Diels proposed emending the figure in Hippolytus downward one year.) The second text is the *Suda*'s entry for

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[297] Diels 1876, 27.

[298] This swap was apparently first proposed by Simson in Heyne's 1803 edition of Apollodorus; cf. Dorandi 2013, 151 ad loc.

Anaximenes (11), which explicitly identifies the relevant capture of Sardis as the Persian one and maintains that the philosopher was alive when it occurred. The *Suda* dates the sack incorrectly, however, placing it in the 55th Olympiad, 560–556; Eusebius' chronicle contains what looks like a cognate error (10.A). To remedy this mistake Diels accepted Nietzsche's proposal to add another verb to the *Suda* entry: "he was alive in the 55th Olympiad *and died* during the capture of Sardis."[299] While this rescues the *Suda* text from error, it leaves us with two sets of dates for Anaximenes: according to Hippolytus and the emended text of Diogenes, he was born in 586, in his prime around 547, and died just after 528; according to the emended text of the *Suda*, he was born around 600, in his prime circa 560, and perished in 547. Jacoby tentatively endorsed Diels' interpretation of the evidence. Recent scholars tend to favor the later of the two datings but place large question marks around Anaximenes' exact lifetime.[300] Less cautiously, Hicks in his Loeb edition of Diogenes Laertius incorporated Diels' rewriting of the text without any notice of the fact, as has Wöhrle in his new edition of the fragments of the Milesians.[301]

Both the problem and the way Diels resolved it are eerily reminiscent of his efforts to reconstruct the Apollodoran dating of Anaximander. In both cases there is a rather aggressive piece of textual surgery involving the text of Diogenes: the excision of the synchronism with Polycrates there, the reversal of the verbs here. In both cases the surgery is justified by appeal to the evidence of later sources: in the case of Anaximander, the Olympiad dates found in Pliny and Hippolytus; in the case of Anaximenes, the Olympiad dates found in Hippolytus, Eusebius, and the *Suda*. The weakness of the reconstruction for Anaximander was that it

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[299] Nietzsche 2001, 39.

[300] Guthrie 1962, 115, Kirk, Raven, and Schofield 1983, 143, Kerferd 1954.

[301] Hicks 2000, vol. 1, 132, Wöhrle 2012, 292; similarly, Laertius 2018, 62.

required us to reject several pieces of early, non-Apollodoran testimony. Here too the proposed dating of Anaximenes requires us to dismiss the most obvious chronological implications of the succession that runs Anaximander–Anaximenes–Anaxagoras/Diogenes. Finally, Apollodorus apparently used the sack of Sardis to date both Anaximenes' life and Anaximander's. Well: if the problem is the same, perhaps the solution should be the same too.

Let us suppose once again that the sack of Sardis Apollodorus had in mind was indeed the Ionian one. This allows us to leave the transmitted text of Diogenes as it stands, and construe γεγένηται with its expected sense, "was born." In this case the Olympiad interpretation of Apollodorus' dating in Diogenes seems to have been made correctly; by contrast, the datings in Hippolytus, Eusebius, and the *Suda* clearly arose from misidentification of the intended sack.[302] Accepting Diogenes' report as transmitted does present the problem of what looks like a too-early death for the philosopher around the age of 30. But a year of death can easily be interpreted, not as a positive claim on Apollodorus' part that the philosopher died that year, but a negative claim that Apollodorus (or his interpreters) did not know of any evidence for his activity in subsequent years.[303] Nothing precludes the assumption that Anaximenes survived well beyond the date – and as we shall see, there is good evidence, beyond his teaching of Anaxagoras and Diogenes, that he was still alive in the 470's and 460's.

With Anaximenes' birth set in 528 BCE or thereabouts, the reports that he was a pupil of Anaximander and taught Anaxagoras and Diogenes all fall into place. Anaxagoras would have been old enough to

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[302] Eusebius and the *Suda* place the sack and Anaximenes' year of notice 14 or 15 years too early (10.A, 11) – another manifestation of the 'Xenophanes Gap'; see pages 69/70.

[303] As Jacoby 1902, 190, already observed.

study under the Milesian starting around 480, at which point Anaximenes, on the dating proposed here, would have been no more than fifty years old. By the same token Diogenes of Apollonia, a coeval of Anaxagoras, could also have heard Anaximenes teach. Taken together these relationships imply that Anaximenes was still active in the years after 480.

An anonymous report that seems to come from the Hellenistic succession literature maintains that Anaximenes heard Parmenides teach (7.A). At very least this testimonium tells us that, in the eyes of some unknown Hellenistic scholar, nothing in the chronology would prevent Parmenides from being Anaximenes' teacher. If the report is historically accurate, it would entail that Anaximenes was fairly old when he first studied with Parmenides, in his forties or fifties; again, nothing prevents us from thinking of him as an opsimath. It would also imply a journey to Magna Graecia, something which is not attested for Anaximenes, but which is certainly in keeping with the massive population movements that are said to have taken place after the Ionian revolt.[304] Most importantly, this personal connection would give Anaximenes a key role to play in transmitting Parmenides' arguments about the immutability of Being to Anaxagoras and the other Ionians.

From the viewpoint of the history of ideas, such a role actually makes a great deal of sense. Daniel Graham has recently offered a revised interpretation of Anaximenes' physics which begins from the observation that, as conventionally reconstructed, it implies awareness of Parmenides' ideas about material monism; that is, Anaximenes' thesis that air alone is the basic substance from which all things in the world are constituted appears to assume the truth of Parmenides' claims that whatever exists must be a single, universal being.[305] Since the Standard

[304] Demand 1988; see the discussion on page 255.

[305] Graham 2006, 45–84.

Dating make any debt to Parmenides on Anaximenes' part impossible, Graham reinterprets Anaximenes' theories in such a way that air is merely the primeval substance from which the world was born, not the underlying element of all beings. But on the reconstruction proposed here, there may be a simpler explanation for this connection between the two: if Anaximenes developed his physics after studying with Parmenides, it should come as no surprise to find him incorporating the latter's insights into his theories. Graham's reinterpretation may be unnecessary, but his perception of Anaximenes' seeming debt to Parmenides is a valuable insight, one that ultimately lends credence to my proposed dating.[306]

In an article on Anaximenes' chronology George Kerferd criticized Diels' manipulations of Diogenes' text for reasons similar to those sketched out above.[307] Unfortunately he did not consider the evidence of Theophrastus or question the received chronology for Anaximander, merely arguing instead that there were two Hellenistic datings for Anaximenes, one with prime years around 540 BCE and one with a prime around 510, neither founded on any real evidence. Yet Kerferd made several acute observations regarding the chronological implications of a letter from Anaximenes to Pythagoras, apocryphal but likely of Hellenistic provenance (4.A). The key part of this text is a statement

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[306] Note also the ordering of Aristotle's short list of "those who make the opposites their fundamental principles" at *Physics* 118a19. First comes Parmenides, who took fire and earth to be the principles; then an anonymous physicist who treated "the dense and the rare" as such; and finally Democritus, who made the full and the empty his principles. Since Parmenides and Democritus are in chronological order, it is plausible to think that the person between them is as well. Anaximenes was the first Ionian physicist to make extensive use of condensation and rarefaction as explanatory principles. If he is the individual in question here, then Aristotle seems to have regarded him as a post-Parmenidean thinker.

[307] Kerferd 1954.

made by Anaximenes: "The Ionians are about to declare war on the Medes on behalf of the common freedom; once that happens we will no longer have any hope of safety." This sentence makes clear that the letter is set on the eve of the Ionian revolt, circa 510 to 500. The "sons of Aeacus" mentioned in the previous sentence as tormenting the Samians will include, not just Polycrates but his successor and brother Syloson, who was notorious for his bloody rule during those years, and Aeaces II, who succeeded him.[308] The "tyrants of Miletus" refers to men like the revolutionary leader Aristagoras, who was described as a tyrant by Herodotus. The letter may be a fabrication, but it is of interest for its hint that Anaximenes was alive in the last years of the sixth-century, just before the Ionian revolt and the sack of Sardis. Other fictional works that depict Anaximenes as a contemporary of Polycrates (5) or as an adult at the time of Thales' death (4.B) either reflect the incorrect Olympiad dating of the philosopher, or a confusion, exhibited by many late sources, between Anaximenes and Anaximander.

As was the case with Anaximander, then, identifying the Apollodoran sack of Sardis with the Ionian one allows us to respect the transmitted text of Diogenes and account for various pieces of overlooked evidence. It also bridges the gap between the teacher-student pair Anaximenes and Anaxagoras, a gap scholars have long been conscious of but prevented from fixing due to acceptance of the Standard Dating. The arguments made for downdating Anaximander and Anaximenes are mutually reinforcing, since we are dealing in both cases with the same misidentification of the Lydian capital's sack.

With this framework in place we can now better assess a set of testimonia regarding Anaximander, Anaximenes, and earthquakes –

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[308] Herodotus, *Histories* 3.149, Strabo, *Geography* 14.1.17.

testimonia which contain an overlooked clue that Anaximenes was still alive in the 460's BCE.[309] Aristotle's summary of earthquake theories in his *Meteorology* provides essential context for these reports. There he observes that, "down to the current day there are three theories that have been handed down, and they come from three persons," to wit (365a20, b1, b6):

> "Anaxagoras says that *aether*, which naturally travels upwards, causes the earth to move whenever it encounters hollows underground; for all of the earth is naturally porous, and the upper parts get choked by rain..."
>
> "Democritus says that the earth is full of water and that any additional rainwater which the earth takes on causes it to shake; for when there is more water than its hollows can admit, the earth is compelled to shake while the water forces its way out. Also, when the earth dries out it pulls moisture from places that are full into places that are empty and the shifting involved in this encounter causes motion..."
>
> "Anaximenes says that whenever the earth is moistened or dries out it fractures and is shaken by hills that break off and fall down. That is why earthquakes take place in droughts as well as periods of heavy rain, because during droughts it dries out and fractures, as was just said, and when rain causes its moisture to overflow, it caves in."

According to Anaxagoras, earthquakes are caused by cosmic aether rising up through the hollows of the earth and finding its passage blocked by water. For Democritus, the shifting of large bodies of underground

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[309] For the context of these theories see Hine 2002, 56–75.

water during times of excess rainfall or drought is what triggers quakes. Anaximenes also regards floods or droughts as the ultimate cause of quakes, but identified as their proximate cause the collapse of hillsides broken loose by the extreme environmental conditions, which shake the earth when they fall on the ground below.

Now two Roman sources also ascribe an interest in earthquakes to Anaximander; yet both are demonstrably corruptions of a tradition that originally ascribed such an interest to Anaximenes. The first source is Ammianus Marcellinus, who recites a distorted version of Aristotle's triple doxography (*History* 17.7.11/2):

> "According to various theories which Aristotle feverishly wrestled with, they originate in small crevices in the earth, called 'pipes' by the Greeks, due to repeated pulses of rising water; or in fact, as Anaxagoras asserts, due to the power of winds coming up through the bottom of the earth which encounter solid crust and, finding no place to break out, shake those parts of the ground where moisture has crept downward; hence the phenomenon frequently observed during earthquakes that nary a breath of wind is felt nearby, since the winds are busy in the distant reaches of the earth. Anaximander said that when the earth is parched by intense summer drought or when it has been drenched by rain, large fissures open in the ground through which air can penetrate from above with violent intensity. The strong wind passing through can shake the earth and move it from its natural location, which is why tremors of this sort occur during spells of steamy heat or under excessive rainy downpours from the sky."

The author advertises Aristotle as his source, and some of the features of the *Meteorology* passage are still in evidence, despite the fact that the language has changed radically in the course of transmission and that the

theories bear only a weak resemblance to their originals. The anonymous account that ascribes quakes to water moving through cracks is a loose retelling of Democritus' theory, while Anaxagoras' is reported more accurately, with wind replacing aether. It follows then that the last passage communicates what was originally Anaximenes' theory, albeit with an exclusive focus being placed on the ultimate causes, flooding and drought. The attribution of the last explanation to Anaximander is thus mistake, facilitated by confusion of the Milesians' similar-sounding names.[310]

A passage from Cicero's work *Divination* also mentions Anaximander in connection with earthquakes; unlike Ammianus, however, Cicero credits the philosopher with a prediction rather than a theory (*Divination* 1.112):

> "The natural philosopher Anaximander warned the Spartans that because an earthquake was imminent they should abandon their city and homes and camp out in the countryside under arms; that was the time the whole city collapsed and the flanks of Mt. Taygetus were torn away like a ship's prow."

Pliny repeats the same story (*Natural History* 2.191). It is clear what historical event is being referred to here: the great earthquake at Sparta, perhaps the most serious seismic calamity in the classical era of Greece.[311] Precisely when this quake occurred is unknown, since the datings in our sources are inconsistent; Diodorus gives a date which corresponds to 469/8 BCE, Plutarch 466/5, Thucydides 465/4, and Pausanias 464/3. Since Thucydides is the oldest source, I will treat 465 as the year in

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[310] See, for instance, Guthrie 1962, 139.

[311] Context: French 1955.

question.[312] The effects on the city were devastating, with nearly 20,000 casualties and few structures left standing. There were also serious political consequences. Seeing a chance at freedom, the helots of Sparta and the Messenians attempted to revolt; the Athenians offered to send an armed force to Sparta to help put down the rebels, but the Spartans, suspicious of Athenian motives, turned down the offer, a rejection that led to a permanent rupture in the detente between the two cities that had held up since the Persian Wars. Two details in the passage from Cicero quoted above confirm that he is referring to this particular event and not some otherwise unattested tremor. Plutarch and other sources refer to massive landslides from Mt. Taygetus, just as Cicero does.[313] In addition, Diodorus describes how the Spartan king Archidamus kept his head during the disaster: "and even while the city was still gripped by terror at the quake, he was the first Spartan in the city to grab his hoplite armor; he ran out to the countryside, ordering his fellow citizen to do the same" (11.63.6). The same measures are mentioned in Cicero's anecdote, only with Anaximander recommending the course of action that, according to Diodorus, Archidamus actually pursued.

Now there is a serious chronological problem if Anaximander made this forecast. According to the late dating I have advocated here, Anaximander would have been nearly 100 years old when the tremor occurred; on the Standard Dating, he would have been 145! We should thus be open to the possibility that Cicero, just like Ammianus, has given the wrong name for the earthquake expert. Anaxagoras, who would have been about 35 years old at the time of the shock, is one candidate; another is Anaximenes, who would have been about 60.

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[312] Thucydides 1.101.2, Strabo, *Geography* 8.5.7, Diodorus Siculus, *Library of History* 11.63.1, 15.66.4, Pliny, *Natural History* 2.53, Plutarch, *Cimon* 16.4-8, Pausanias, *Tour* 4.24.5.

[313] Strabo, *Geography* 8.5.7, Plutarch, *Cimon* 16.5, Pliny, *Natural History* 2.53.

What clinches the case for Anaximenes is the fact that his theory seems to be a generalization based on the circumstances of the Spartan quake. As noted above, our sources record that pieces of the Taygetus range collapsed during the tremor, "torn away like the prow of a ship," as Cicero says (*e monte Taygeto extrema montis quasi puppis avolsa est*). In Anaximenes' theory, according to Aristotle, the proximate cause of the earth's violent motion is the breaking away and collapse of "hills" (καὶ ὑπὸ τούτων τῶν ἀπορρηγνυμένων κολωνῶν ἐμπιπτόντων σείεσθαι). While not every earthquake produces massive landslides, the Spartan quake of 465 BCE did. The conclusion seems inescapable that Anaximenes developed his theory of earthquakes to explain this particular dramatic event. If Anaximenes was born in the 63rd Olympiad, he will have been between 61 and 64 years old at the time of the disaster, developing his explanation of its cause shortly thereafter.

The revised timelines for Anaximander and Anaximenes license two further bit of speculation. The first concerns their relationship to the city of Apollonia on the Black Sea. Apollonia was originally a colony of Miletus founded "about fifty years before the coming of Cyrus," *circa* 600 BCE; archaeological finds are consistent with this dating.[314] One of the few biographical details preserved for Anaximander holds that he led "a group of settlers (ἀποικία)" from Miletus to Apollonia (Aelian, *Miscellaneous History* 3.17). Both the Standard Dating and the chronology proposed here rule out Anaximander having led an expedition to *found* the colony. What other circumstances might have required him to assume such a role? One answer that suggests itself is the Ionian revolt. Just before the Persians came to Miletus to crush the rebels, deliberations took place about possible places of refuge, with

[314] Isaac 1986, 243.

locations as far away as Sardinia being mooted; Hecataeus proposed the isle of Leros, and the tyrant Aristagoras led a settlement to Myrcinus on the Thracian shore.[315] This was one occasion when a large group of settlers fleeing Miletus might have settled in Apollonia. Another came during the final destruction of Miletus by the Persians in 494; Herodotus tells us that many refugees went to Cale Acte in Sicily (*Histories* 6.22), but Miletus' old colonies on the Black Sea might also have taken in their share. While itemizing instances of civil strife caused by immigration, Aristotle reported that factional disputes arose in Apollonia after the town admitted new settlers (ἐποίκους). This tumultuous period seems like a plausible context for his report, especially since, immediately before mentioning the incident, Aristotle alludes to the settlement of Samian refugees in Zancle ca. 494/3 as a result of the Ionian revolt.[316] A leading member of Milesian society would certainly be a prime candidate to lead a group of evacuees to safety in a corner of the Black Sea.

Now let us consider how Anaximenes' biography may have intersected with these events. About two decades after the destruction of Miletus, in the 470's BCE, Anaximenes was apparently teaching Diogenes and Anaxagoras. Diogenes was from Apollonia; and we know that Anaxagoras spent some time on the shores of the Black Sea, since he commented on the frequency of sundogs (parhelia) in its skies.[317] Could it be that Anaximenes made Apollonia his home in exile during the 490's, after the Persians destroyed his native city? Did he arrive there with Anaximander? The evidence for such a hypothesis is circumstantial and incomplete, but it does hang together, suggesting a Milesian

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[315] See HECATAEUS 2.B; Demand 1988.

[316] *Politics* 5.3, 1303a; cf. Herodotus, *Histories* 6.22/3.

[317] pseudo-Plutarch, *Opinions* 3.5.

intellectual network that was disrupted by the Persian intervention in Greece, then reconstituted itself in Apollonia.

A final conjecture is in order about the original wording of the dating indications for the two Milesians. One remarkable feature of the chronology for Anaximander reconstructed here is that it makes him an exact contemporary of Pythagoras. The latter, as we saw, was reportedly born in the year we would call 562 BCE. If Anaximander was 64 years old when Sardis was sacked, then he too was born in 562. What makes the coincidence even more striking is that the language of Diogenes' report links Anaximander's prime with the reign of Polycrates. This is not a historical detail that would have been preserved independently (no Samian links are attested for Anaximander), but one that follows quite naturally from a synchronism between Anaximander and Pythagoras. It would seem then that what is reported as Apollodorus' dating for Anaximander rests on *two* verbal statements: one holding that he was active at the time of Sardis' capture, and a second to the effect that he lived at the same time as Pythagoras. Now it is possible that the two men really were born in the same year, and that Anaximander left some hint in his treatise which allowed Hellenistic scholars to uncover this fact; but such a scenario seems unlikely. Instead, I would suggest that the verbal indication on which our tradition rests was originally phrased like Sotion's loose synchronism of Anaximander and Xenophanes (ANAXIMANDER 2). Subsequently this claim was reinterpreted as an *exact* synchronism, which led to Anaximander's birth being placed in the same year as Pythagoras', and his age at the time of the sack being reckoned as 64 years. These precise figures may go back to Apollodorus himself, or they may have been calculated by an epitomator of Apollodorus, based on verbal indications found in his poem; there is no way to decide for sure which is the case.

Given this relationship, it is intriguing that the precise interval 64 years also turns up in Anaximenes' chronology. Apollodorus reportedly placed the latter's year of birth in the 63rd Olympiad, 528–524 BCE. Dates of birth were typically not transmitted by early sources, but calculated later based lifespans, acme estimates, and other indications of adult activity. Now if Anaximenes commented on the Spartan earthquake, Apollodorus could hardly have failed to take this fact into account when determining his dates, just as we have. Drawing his chronology from Thucydides, he would have placed the event in 465 (1.101.2). If Anaximenes was born in the first year of the 63rd Olympiad, or 528/7, he would have been 64 years old when the earthquake occurred, just as Anaximander was 64 years old when Sardis was captured. The latter figure, as we just saw, was apparently based on a synchronism with Pythagoras. A similar deduction may be at work here: Anaximenes' lifespan was not independently transmitted, but calculated based on a statement that *equated his lifespan* with Anaximander's.

Without further information we will never be able to reconstruct the exact wording of these dating claims – or to decide whether they derive from Apollodorus, rather than one of his sources. Still, since we can speak with a fair degree of confidence about the information communicated by these claims, it may be useful to offer a reconstruction of the phrase behind Anaximander's chronology *exempli gratia*, in order to show how the process of date-determination might have worked. Suppose Apollodorus, or his source, wrote something like this: "Anaximander, who lived at the same time as Pythagoras, led a settlement to Apollonia around the time of Sardis' sack." Such a statement, if taken as a precise claim, would suffice to yield Anaximander's year of birth and his age at the time of Sardis' destruction – though the answers would vary depending on which sack was assumed. The choice of the 'wrong' sack may seem puzzling, since contextual

clues in Apollodorus ought to have helped resolve any ambiguity. However, there may have been a desire to accommodate the early misdating of Pythagoras' life, which had him winning a victory in the Olympics in 588 BCE, and would imply birth within a year or two of 604. Our unknown chronographer may have felt it necessary to choose the first, Persian sack of Sardis in order to preserve the peer relationship between Pythagoras and Anaximander.

As for the younger Milesian, we might postulate a statement along the following lines: "Anaximenes, who was Anaximander's ἡλικιώτης (age-mate), foretold the earthquake at Sparta." I have chosen to include the Greek term here for two reasons. First, it seems to have been used to describe Eudoxus' relationship to Plato at some point early in the chronological tradition, and served as the basis for several misguided attempts to date Eudoxus' life based on the assumption that he was Plato's *exact* contemporary.[318] Secondly, it is ambiguous, denoting either a person who lived during the same age (ἡλικία as historical time period) or a person who was of the same age (ἡλικία as time interval since birth). Taken in the former sense, it would align Anaximenes' lifespan with Anaximander's and lead one to deduce that he too died at the time of Sardis' capture – whichever event one understood that to be. Taken in the latter sense, it would mean that Anaximenes lived to age 64, just like his teacher, and allow one to fix 528 BCE as his year of birth by counting back 64 years from the Spartan earthquake. The claim ascribed to Apollodorus by Diogenes mixes the latter interpretation (Anaximenes is born in 528) with the former (Anaximenes dies around the capture of Sardis), and thus has the unfortunate consequence of cutting his life short at 29 years. This is a good indication that what Diogenes is reporting as an Apollodoran dating claim actually represents a mix of *two competing*

[318] See the discussion on pages 220–223.

interpretations of a single ambiguous or underdetermined phrase. As it happens, the same also holds true of Diogenes' statement about Anaximander's dates, which is why the two parts of the statement do not make chronological sense when they are combined: Anaximander dies shortly after his 64th year, in 547/6, and he reaches his prime during the reign of Polycrates. Both reports (ANAXIMANDER 3, ANAXIMENES 3) are thus mutually inconsistent syntheses pairing a verbal dating with an Olympiad dating that represent alternative interpretations of an underlying Apollodoran claim.

These conjectures about the form of the original dating language for the two Milesians build on the foundations of my proposed redating, and are perforce more speculative in nature than the latter. Nevertheless they do offer the most economical explanation for the conflicting signals given by the tradition, providing the missing link, as it were, between the precise Olympiad dates in our late sources, and the vaguer but more authoritative claims on which they were based. The very fact that one can make them has an implication whose importance cannot be stressed enough – namely, the various precise dates which our sources preserve have very shaky foundations. For consider: if the 64-year interval which is mentioned in Diogenes' life of Anaximander, and the 64-year interval which is implicit in the dating for Anaximenes' birth year, are both artifacts of an over-precise synchronism between Anaximander and Pythagoras, then it would appear that neither has an objective basis in the pre-Apollodoran tradition; both have been taken over from the better-attested chronology for Pythagoras through a series of synchronisms and misunderstandings. The only data which appear to be grounded in historical fact, and cannot be explained away by such manipulations, are the various teacher-student relationships; the synchronism between Anaximander and the Ionian sack of Sardis in 499 BCE; and Anaximenes' commentary on the Spartan earthquake of 465.

It is certainly credible that Anaximander was born in the 560's but there is no reason to think he was born exactly in 562; and while it is certainly plausible that Anaximenes was born in the 520's, the placement of his birth in the year 528 appears to be artificial. It emerges then that we know less about the precise ages of the Milesians at various dates than we might have thought. On the other hand, we now have a fairly complete account of their chronological traditions, one which respects our earliest bits of evidence while making sense of the diverse and misleading late testimonia.

Anaximander, estimated objective chronology:

560's BCE:	born in Miletus
540's:	acquainted with Thales
before 500:	published map of the world, and treatise
499:	linked to sack of Sardis
490's:	led Milesian refugees to Apollonia
490's, 480's:	acquainted with Parmenides, Empedocles (?)

Anaximenes, estimated objective chronology:

520's BCE:	born in Miletus
after 510:	companion of Anaximander
490's:	life disrupted by Ionian revolt; leaves for Apollonia (?)
480's:	visits Parmenides?
470's, 460's:	teaches Anaxagoras and Diogenes
after 465:	comments on Spartan earthquake

4

CASE STUDIES, III: OUTSIDE THE APOLLODORAN TRADITION

There are quite a few important early Greek sages and philosophers whose dates did not enter the chronological vulgate, presumably because Apollodorus did not discuss them; most of them do not receive Olympiad datings in our sources. In order to situate them in the historical timeline we must make the best use of whatever indications we have. Because many of these are statements to the effect that the person came before or after some other thinker, and because many of those other thinkers received dates from Apollodorus, the chronological framework established in the last two chapters can greatly assist our efforts to nail down their timelines.

The studies that follow do not cover all of the individuals who contributed to the study of the natural world prior to Aristotle, but are limited instead to important cosmographers, astronomers, geometers, and geographers. My criterion for 'importance' is simply that the person be mentioned by more than one ancient source. While I have included a few figures who were associated with medicine like Democedes and

Alcmaeon, I have otherwise omitted the chronology of early physicians as a subject requiring its own special investigation.[319] Readers curious about the dates of figures not mentioned here should refer to the relevant entries in the *Encyclopedia of Ancient Natural Scientists*, the *Dictionnaire des philosophes antiques*, or *Brill's New Pauly*.[320]

DEMOCEDES OF CROTON

1. Herodotus, *History* 3.131.1, 125.1, 3, 134.4–6, 136.1

5th century BCE

"At Croton [Democedes] was oppressed by a harsh-tempered father; when he could no longer stand him, he left for Aegina. Setting up shop there, in the first year he excelled the other physicians, even though he had no equipment and none of the tools required for his craft; in the second year the Aeginetans awarded him a talent from the public purse, in the third year the Athenians awarded him a hundred minas, and in the fourth Polycrates gave him two talents. In this way he made it to Samos, and thanks to him the physicians of Croton are not the least in fame…"

"Polycrates… sailed to Oroetes, accompanied by many of his companions, including Democedes son of Calliphon from Croton, who was a physician and among his contemporaries the foremost practitioner of his art…"

[Polycrates is crucified, in 522 BCE, and Democedes, after becoming a prisoner at Darius' court, is elevated to the post of the royal physician]

"[Darius] 'My wife: you have spoken everything which I had in mind to do. I am planning to build a bridge connecting this continent to the other and march against the Scythians; and this will happen a short time

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[319] Jouanna 1999 and Craik 2014.

[320] Keyser and Irby-Massie 2008, Goulet 1989–2018, Cancik, Schneider, and Landfester 1996–present.

from now.' Atossa said, 'Now listen: set aside this initial march against the Scythians; they will be there for you whenever you want. Do me a favor and march against Greece…[321] You have a man who is better suited than anyone to show and describe to you the particulars of Greece: the fellow who cured your foot.' Darius answered: 'My wife, since you want me to try Greece first, I think it would be better to send some Persian spies against them accompanied by the man you referred to, who can study them and observe them and report back the details.'…"

"So [Democedes and the Persians] travelled down to Phoenicia, then from Phoenicia to the city of Sidon, and immediately fitted out two triremes together with a cargo-boat packed full of goods; when everything was ready they sailed to Greece. They landed at locations along the coast to observe and make written records, until, after observing most of the well-known locations, they came to Tarentum in Italy."

[The king of Tarentum then seizes the Persian ships and allows Democedes to escape home to Croton. After a Persian attempt to recapture the doctor proving unsuccessful, Democedes marries the daughter of the wrestler Milo.]

Although this study does not consider the chronology of early Greek physicians, an exception has been made for Democedes for three reasons. First, Democedes is the oldest, non-legendary Greek physician about whom anything of substance is recorded. Second, thanks to Herodotus' long and colorful account, we know more about his life and career than we do about any of his peers among the early Greek natural philosophers. Finally, in addition to being a physician, he reportedly started work on a written description of the Greek world for the benefit

[321] ca. 514 BCE. For the date, see Vasilev 2015, 58/9 (though Balcer 1972 makes a good case for placing it in 519).

of the Persian king; that is to say, Democedes was, or at least was instructed to become, one of the first Greek geographers.

The dating of his mature years is fairly clear. Democedes achieved fame as a physician sometime during Polycrates' reign, which began around 530 BCE, and was with him at his death in 522. He spent the following years in Persia. His mapping expedition to Greece and subsequent homecoming took place before Darius' Scythian invasion, which probably dates to 514. His period of attested activity thus centers on the years 525 to 515. He was nearly the same age as Pythagoras, and the two must surely have crossed paths, if not at Samos, then in Croton.

Estimated objective dates

ca. 525 to 522 BCE:	physician for Polycrates
521 to 515:	physician for Darius
ca. 515:	mapping expedition along the Greek coast

LASUS OF HERMIONE

1. Herodotus, *Histories* 7.6.3 5th century BCE

"[The sons of Peisistratus] were accompanied by Onomacritus of Athens, an oracle-collector who had organized the oracles of Musaeus, after their broken friendship had been repaired. For Onomacritus had been driven out of Athens by Hipparchus the son of Peisistratus, after Lasus of Hermione caught him in the act of inserting into the works of Musaeus an oracle to the effect that the islands just off Lemnos would disappear into the sea, for which Hipparchus expelled him, even though he had frequently used his services in the past."

Hipparchus of Athens: tyrant from 527 to 514 BCE

2. the *Suda*, 'Lasos' (*lambda*-139) 10th century CE
"Lasus, son of Charbinus from Hermione, a city in Achaea, was born in the 58th Olympiad, when Darius the son of Hystaspes was. Some list him among the Seven Sages in place of Periander. He was the first to write an account of music, introduce the dithyramb into competition, and introduce contentious speeches."
58th Olympiad: 548 to 544 BCE

3. Thomas Magister, *Life of Pindar* 4.8-14 13th century
"Myrto married Scopelinus the *aulos*-player, who taught Pindar the art of the *aulos*. When he saw how talented he was, he handed him over to Lasus of Hermione the lyric poet, at whose side he learned the art of the lyre. Pindar was alive in the time of Aeschylus, and visited with him, and died when the Persian wars were in their prime (sic)."
Pindar: ca. 520 to ca. 440 BCE

Lasus was an innovative practicing musician whom later harmonic theorists regarded as the founder of their discipline, apparently on the basis of a treatise which he composed on the subject (2). The only early piece of evidence for Lasus' life is Herodotus' anecdote about his detection of Onomacritus' forgery during Hipparchus' rule at Athens, 527 to 514 BCE (1). It is possible to date this detection more precisely based on the oracle's prediction that islands around Lemnos would "disappear into the sea." Lemnos first became an object of interest to the Athenians when Miltiades led a force from the Chersonnese that put the island under Athenian control. This event is synchronized by Cornelius Nepos with Darius' Scythian expedition, and should probably be dated to the year 515/4.[322] Pausanias claimed that one of the islands just off of

[322] *Miltiades* 2; Vasilev 2015, 59.

Lemnos did disappear, a pseudo-fact he likely picked up from a text of the oracle (*Tour* 8.33.4). Nepos adds that after subduing Lemnos, Miltiades went on to conquer the other Cyclades – presumably confusing the same small islands with the more famous archipelago. Accordingly the oracle should date to ca. 515, as should Lasus' unmasking of the forgery, and we can say that he was present in Athens just before Hipparchus' assassination in 514.

Lasus' teaching of a teenage Pindar must date to 505 BCE or so, given the latter's birth date (3); this tradition may be the ultimate source of the *Suda*'s date, which places Lasus' birth around 545 and does not seem connected to the anecdote about the oracle (2). An indirect clue to Lasus' chronology comes from the tradition that he introduced the dithyrambic competition; the first winner of such competitions at Athens were recognized in 508, according to the *Parian Marble* (46). The years of his attested activity thus run from 515 to 505.

Estimated objective chronology

around 515 BCE:	at Athens, detects Onomacritus' forgery
before 508:	introduces dithyrambic competition
around 505:	teaches Pindar

CLEOSTRATUS OF TENEDOS

1. pseudo-Scylax, *Periplus* 95 — 4th century BCE

"On the mainland are the cities Priapus, Parium, Lampsacus, Percote, Abydus, and the mouth of the Propontis at Sestus is here. At this point the Troad begins, and the Greek cities in the Troad are as follows: Dardanus, Rhoeteum, Ilium (this is 25 stades from the sea), and a river,

Scamander. And across from this lies the island of Tenedos and its harbor, where the astronomer Cleostratus is from."

2. Pliny the Elder, *Natural History* 2.30 1st century CE
"An account of the theory of the circles of heaven will be better suited to my discussion of the earth, since theory is totally relevant to it, provided that we do not postpone mentioning the discoverers of the zodiac. According to tradition, Anaximander of Miletus was the first to understand its obliquity in the 58th Olympiad, thus opening the doors of the subject; next, Cleostratus recognized the signs on it, and that the first were those of Aries and Sagittarius."
58th Olympiad: 548 to 544 BCE

3. Censorinus, *The Day of Birth* 18.4 3rd century
"But when it was realized that this period [four years] only fits the course of the sun and not the moon, it too was doubled, making an *octaeteris*, which at the time was called an *enneateris*, because its first year returned every ninth year. Most of Greece considered this cycle to be the true Great Year, because it was made up of whole seasonal years, which is what ought to happen in a Great Year. For there are within it 2922 whole days, 99 whole months, and 8 whole seasonal years. Although it was commonly thought that Eudoxus of Cnidus established this *octaeteris*, people say Cleostratus of Tenedos was the first to construct it and that subsequently others with different approaches proposed their own *octaeterides* with months variously intercalated, as Harpalus did and Nauteles and Menestratus and others, including Dositheus, whose *octaeteris* in particular went under the name 'Eudoxus'."

Cleostratus was the author of a didactic poem on astronomy that included several noteworthy innovations in calendrical reckoning and constellations. The oldest text to refer to Cleostratus by name is the *Periplus* ascribed to Scylax of Caryanda. This text probably reached its present form in the 330's BCE in the hands of a scholar associated with the school of Aristotle.[323] However, it appears to be based on materials from earlier writers, possibly including the archaic navigator from Caryanda. According to Strabo (*Geography* 13.1.4) Scylax distinguished himself from other authorities by having the Troad begin at the town of Abydus. The same definition is put forward in the *Periplus*, which suggests we are dealing with material taken over from the archaic document (1). In the sentence that immediately follows, the text refers to Cleostratus as a native of Tenedos using the *present* tense. Its other references to persons or events observe standard time conventions, i.e. a statement about Homer's homeland (98.2) is in the past tense, as is Odysseus' visit to Calypso (13.5), and Callistratus of Athens' efforts as a colonizer (67.2). During the fourth-century Cleostratus was nothing more than an obscure astronomer, and an odd choice to be singled out for recognition – just one of four individuals to be named in the treatise. For this reason I would suggest that the reference goes back to the text of Scylax, for whom Cleostratus was a noteworthy contemporary. Scylax, as we have just seen, can be dated to the period 515 to 495, and Cleostratus should belong to roughly the same era.

A very different line of argument leads to a similar conclusion about his date. Cleostratus was the first Greek astronomer on record to describe a lunar-solar cycle called the *octaeteris,* a cycle consisting of 8 solar years and 99 lunar months (3). Scholars have often assumed that Cleostratus took over this scheme from the Babylonian astronomy,

[323] Shipley 2011, 6–8.

which is surely correct, given that Babylonian astronomical institutions were far more advanced that any to be found in Greece at the time.[324] That being so, we can date Cleostratus based on the timing of the introduction of the Babylonian practice. As a citizen of Tenedos, Cleostratus was a *de facto* subject of the Persian empire, living just a few days' journey away from the satrapal capital at Dascylum. For official business the Persians employed a Babylonian calendar that was designed to keep the solar year roughly in step with the twelve-month lunar year.[325] To achieve this, a thirteenth month was intercalated about every two and a half years. Down to about 540 BCE this intercalation was performed at irregular intervals, governed by observations of the moon's position at the New Year and occasional political factors – in theory the decision was made by the king of Babylon, although in practice he followed the advice of his advisors, the astral scholars. Shortly after 540, when the Cyrus became the Babylon king *ex officio*, the practice of intercalation was for the first time made subject to a numerical rule. The effects of this rule were to introduce intercalation on a regular basis, with three extra months every eight years. Although the astronomers probably did not conceptualize it as such, it produced a lunar-solar calendar that was governed by an octaeteris. Initially, in 536/5, the three months were distributed within the cycle evenly but not predictably; later, starting 525/4, a pattern of 2½–3–2½-year intervals became the

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[324] On Cleostratus' debt, see Fotheringham 1919, 175/6. One can get a good sense of the disparity by comparing the astronomy of Hesiod's *Works and Days* – a scattered assortment of constellation risings and temporal intervals, plus a lunar lucky-day calendar – with the massive corpus of Babylonian stellar and planetary observations, interpretations, and forecasts that date from the eighth- and seventh-centuries; cf. Brown 2000.

[325] Stern 2000, a fascinating study of Egyptian/Babylonian double dates in fifth-century Elephantine papyri, is essential reading on this subject.

norm. The following chart compiled by Sacha Stern shows the details of this introduction:[326]

Intercalations, 541–499 (Cyrus, Cambyses, early Darius I)

Year (BCE)	Intercalated month	Years from prior intercalation	Year number within 8-year cycle
541/0	12th	-	-
537/6	6th	3 1/2	-
536/5	12th	1 1/2	-
533/2	12th	3	8
530/29	6th	2 1/2	3
527/6	6th	3	6
525/4	12th	2 1/2	8
522/1	12th	3	3
519/8	6th	2 1/2	6
517/6	12th	2 1/2	8
514/3	12th	3	3
511/0	6th	2 1/2	6
509/8	12th	2 1/2	8
506/5	12th	3	3
503/2	6th	2 1/2	6
500/499	12th	3 1/2	-

Unless Cleostratus was a visiting scholar at Babylon (very unlikely), he would not have learned about this rule from the persons responsible for creating it. Nevertheless, it would not have been hard for him to infer its

[326] Stern 2012, 103; my discussion here is heavily indebted to his chapters 2 and 4.

presence – all he had to do was pay attention to the calendar used by Persian officialdom at the nearby satrapal capital, which would have included the intercalated months. The first full eight-year cycle of intercalations would have been completed in 525, at which point a second cycle began, this time with standardized intervals. It is a fair guess that the eight-year pattern would not have become evident to an outsider until it had cycled through a second time. That means that if Cleostratus was keeping track of the official calendar, the earliest point at which he could have spoken with confidence about the cycle would have been in the year 517 – a dating that matches quite nicely the one based on the allusion in the *Periplus*. Cleostratus' active years thus appear to be centered in the 510's.

Two further observations on Cleostratus' relations to the Near East may be in order here. Cleostratus' poem contained the earliest references in a Greek text to constellations from the Babylonian zodiac (Aries, Sagittarius) (2).[327] At very least this detail shows that Cleostratus' knowledge of Mesopotamian astral lore extended beyond the civil calendar to include important constellations. Furthermore, Censorinus, in the same passage where he describes Cleostratus' *Octaeteris*, reports that a man named Harpalus of Tenedos also publicized an eight-year cycle. Diels conjectured that this astronomer was identical to the engineer who built the famous bridge over the Hellespont for Xerxes in 480 BCE after the first attempt by Phoenician engineers failed.[328]

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[327] As first clearly demonstrated by Fotheringham 1919, 175. The Babylonian origins of the Greek zodiacal constellations is an established fact; see van der Waerden, 1952/3, Rogers 1998, Brack-Bernsen and Hunger 1999.

[328] Herodotus, *Histories* 7.34-6; Diels 1904, 8. The text reads (*Laterculi Alexandrini*, col. 8.7–11 Diels): "The Harpalus who accompanied Xerxes; he is the man who yoked the Hellespont (sc. with a bridge)."

Harpalus must have been active about a generation later than Cleostratus; no doubt the two men from Tenedos were acquainted with each other. The fact that Harpalus was patronized by the Persian king makes Cleostratus' Persian connections even more plausible.

Estimated objective dates

510's BCE: acquainted with Scylax and with the Babylonian calendar rule

HECATAEUS OF MILETUS

1. Heraclitus 6th century BCE
via Diogenes Laertius, *Lives* 9.1
"Learning many different things does not teach sense: for otherwise it would have taught Hesiod and Pythagoras, along with Xenophanes and Hecataeus."

2. Herodotus, *Histories* 5th century
A. 5.36.2–4 "All the other leaders spoke to the same point, recommending a revolt. At first the writer Hecataeus would not let them undertake war with the Persian king, listing all the nations which Darius ruled and their capabilities. After failing to persuade them, as a second option he advised them to make themselves masters of the sea. He said that there was no way he could see this happening – for he knew that the power of the Milesians was weak – but if the funds were removed from the temple at Branchidae, which Croesus of Lydia dedicated, then he had considerable hope that they would rule the sea… This idea did not win out either; nevertheless, they decided to revolt."
499 BCE

B. 5.125/6 "Hecataeus the son of Hegesander, the writer, was of the view that they should not sail in either direction, but that if he was expelled Aristagoras should build a wall on the isle of Leros and keep quiet there, then set out and sail to Miletus. This was his advice, but in Aristagoras' eyes the best idea was to depart from Myrcinus."
497 BCE

3. Eratosthenes, *Geography* 3rd century
via Strabo, *Geography* 1.1.11
"Those who followed [Homer] were also well known, noteworthy men, at home with philosophy. The first two to come after him, says Eratosthenes, were Anaximander, who was an associate and fellow-citizen of Thales, and Hecataeus of Miletus; the former was the first to publish a tablet with a drawing of the earth, while Hecataeus left behind a treatise which can be authenticated as his from his other writings."

4. Diodorus Siculus, *Library of History* 10.25.4 1st century
"Hecataeus of Miletus was sent by the Ionians as an ambassador, and asked the reason why Artaphernes distrusted them. When the latter named his suspicion that they bore grudges for injuries they received while being on the losing side of the war, he said, if bad treatment creates an atmosphere of distrust, then good treatment will make the cities well disposed towards the Persians. Artaphernes approved of this advice and restored the cities' laws, ordering that their tribute be regular and according to their ability to pay."
493 BCE

5. the *Suda*, 'Hekataios' (*epsilon*-360) 10th century CE
A. "Son of Hegesander, of Miletus. He was alive in the time of Darius, the king who came after Cambyses, when Dionysius of Miletus was alive,

in the 65th Olympiad. A historian. Herodotus of Halicarnassus is indebted to him, being younger; for he was alive after him. And Hecataeus was a student of Protagoras. He was the first to publish history in prose; Pherecydes was the first to publish any work in prose."

65th Olympiad: 520–516 BCE

'Hellanikos' (*epsilon*-739)

B. "Hellanicus spent time with Herodotus at the court of Amyntas, king of the Macedonians, during the era of Euripides and Sophocles. He overlapped with Hecataeus of Miletus, who was around during the Persian Conflict and a little before."

In addition to his contributions as a writer on geographical and mythological topics, Hecataeus was an important voice in Ionian politics, particularly during the revolt against Persia.[329] Three public actions in which he was reportedly involved can be dated with some confidence to the years 499, 497/6, and 493 BCE (2.A, B, 4); his roles as an ambassador and as a voice of moderation in debates make out him to be a senior figure, perhaps elderly. The way Herodotus speaks as if Hecataeus was already well acquainted with the geographical and political organization of the Persian empire in 499 (2.A) suggest that his researches had been completed then, as does the fact that Milesian politicians had come into possession of a map depicting the Near East (*Histories* 5.49). A *terminus post quem* of ca. 515 for his geographical disquisition can be deduced from the fact that he was relatively well informed about locations in India, presumably relying on Scylax' testimony. From all of this we may infer that he was born before 540, published on geography during the 500's, and was still alive in 493.

[329] For a fine recent introduction to Hecataeus' work and dates, see Fowler 2013, 658–681.

Two early sources license the inference that his birth was no earlier than the 550's BCE. Heraclitus' famous critique of his predecessors' polymathy (1) starts with the oldest figure, Hesiod; moves on to two men who were near contemporaries, Xenophanes and Pythagoras; and concludes with Hecataeus, who might accordingly be regarded as the youngest of the four, and thus born after 562. Eratosthenes' review of his geographical predecessors, which proceeds in chronological order, places Anaximander before Hecataeus (3); if this order is significant, then Hecataeus was probably born after 561. His year of birth should fall somewhere between 560 and 540.

The *Suda*'s entries for Hecataeus and Hellanicus both touch on the former's chronology (5.A, B).[330] The claim in 5.A that Hecataeus was alive between the years 520 and 516 BCE nicely complements the inferences made above, since, treated as an acme date, it entails that he was born between 560 and 556 (5.A). The claim in 5.B that Hecataeus' and Hellanicus' lives overlapped would be actionable if we knew when the chronicler who made this claim thought the latter was born. There are two sources that speak to Hellanicus' year of birth. In Eusebius, he is given an entry under the year 500 (HERACLITUS 7.A), though as we saw earlier, this is of little value, since it forms part of a multi-person synchronism that merely places his life in the era of the Persian Wars, ca. 500 to 460.[331] A biography of Euripides prefaced to the Byzantine edition of his plays is more specific, recording that Hellanicus and Euripides were both born on the day the battle of Salamis was fought, i.e. in 480 (134.17). Because this dating takes the form of a verbal synchronism it probably goes back earlier in the tradition; it surely lies behind the Eusebian date. It is *a priori* unlikely that the *Suda* chronicler had any special knowledge of Hecataeus' chronology, i.e. no

[330] For a different interpretation of these texts see Mosshammer 1973.

[331] See pages 66/7.

information that could not be derived from the various indications in Herodotus' text about his activity in the 490's. So all that his statement about the overlap between Hecataeus and Hellenanicus really tells us is that both were alive during τὰ Περσικά, the former being an old man then, the latter a youth. In short, the evidence of the *Suda* does not add to what we know from other sources about Hecataeus' life.

Finally, Jacoby proposed emending the participle γεγονότι in 5.B to γεγονώς and changing the conjunction καί to ἤ, which has the effect of transforming the nonsensical claim, "[Hellanicus] overlapped with Hecataeus of Miletus, who was born during the Persian Conflict and a little before," into the more acceptable "[Hellanicus], who was born during the Persian Conflict or a little before, overlapped with Hecataeus."[332] But this change is unnecessary. In late sources γεγονώς usually means "was around, was alive"; hence, the participial clause is describing Hecataeus, not Hellanicus, and the two temporal indications point to his activity during the Ionian revolt and in the decade or so beforehand.

Estimated objective dates

550's BCE:	born
520 to 500:	geographical research and writing
499	advisor at Ionian council
497/6	advisor to Aristagoras
493	ambassador to satrap Artaphernes

SCYLAX OF CARYANDA

[332] Jacoby 1956, 187.

1. Herodotus, *Histories*, 4.44.1 5th century BCE

"Most of Asia was discovered by Darius, who wanted to know where the Indus, one of only two rivers to contain crocodiles, empties into the sea. He dispatched various men on ships whom he trusted to report the truth, including Scylax of Caryanda. They set out from the city of Caspatyrus in Pactyan territory and sailed down the river to the dawn and the sunrise as far as the sea; and after sailing on the sea westward they reached, in the thirtieth month, the territory from which the king of Egypt dispatched the Phoenicians I mentioned earlier on a voyage around Libya. After this round-trip voyage Darius conquered the Indians and took control of the sea. In this way the discovery was made that the parts of Asia which do not border the east share many similarities with Libya."

The voyage: ca. 519 to 516 BCE

2. Marcianus, preface to pseudo-Scylax, *Periplus* 6th century CE

"Scylax of Caryanda was a very ancient figure, and at a time when most parts of the world we inhabit were still unknown, as well as the sea inside the pillars of Heracles, he chose to compose a 'Circumnavigation of the Inhabited World'… Aelius of Dion in the first book of his *Alexandria* says that Scylax addressed his work to Darius."

3. The *Suda*, s.v. 'Skylax' (*sigma*-710) 10th century

"From Caryanda. (Caryanda is a city in Caria near Halicarnassus). An astronomer and literary artist. [Works:] *Circumnavigation of the Region outside the Pillars of Heracles; Story of Heraclides, King of the Mylassans; Tour of the Earth; Reply to the History of Polybius*."

Heraclides, king of the Mylassans: 498 BCE (cf. Herodotus 5.121)

The explorer Scylax of Caryanda was one of the oldest Greek writers on geography, his treatise dedicated to the Persian king Darius (1, 2).[333] His voyage to India probably predates Hecataeus' geography but his written work came later, as one may infer from the fact that he is nowhere called the first Greek historian or geographer. His circumnavigation of 'India' via the Indus river and the Red Sea should postdate Darius' reconquest of Egypt around 522 BCE but predate his invasion of India in 518 or 516 (1). One might assume that his account of this journey was finished not long after the voyage concluded, say, in the late 510's; but if the story of Heraclides of Mylasa and his battle tactics during the Ionian revolt ca. 498 formed part of this work (3), then the writings ancient scholars knew about must have come out in the 490's.[334] It is hard to square this with the fact that Hecataeus seems to have drawn on Scylax for his knowledge of India.[335] However at this early date, oral storytelling no doubt played a much bigger role in the dissemination of knowledge than the circulation of books, so perhaps the composition of his treatise did come later – a late-life memoir of sorts.

Estimated objective dates:

around 520 BCE:	voyage around India
around 510:	account of his voyage known to Hecataeus
490's:	account of voyage and story of Heraclides

ALCMAEON OF CROTON

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[333] Kaplan 2009.

[334] For the story of Heraclides, see Momigliano 1993, 29.

[335] Such is the most natural interpretation of the parallel between Hecataeus and Scylax noted at Athenaeus, *Sophists at Dinner* 2.82, 70a–c. See further Jacoby, 1912, 2729–2734.

1. Alcmaeon 5th century BCE
via Diogenes Laertius, *Lives* 8.83
"**Alcmaeon of Croton, son of Peirithous, spoke the following to Brotinus, Leon, and Bathyllus**…"

2. Isocrates, *Counter-Offer* 15.268 4th century
"…not to run aground on the arguments of the older sophists, one of whom said that there was an infinite multitude of beings, Empedocles, who said there were four, with Strife and Love in their midst, Ion, who said there were no more than three, Alcmaeon, who said there were only two, Parmenides and Melissus, who said there was one, and Gorgias, who said there was absolutely nothing."

3. Aristotle, *Metaphysics* A5, 986a22 4th century
A. "Others from the same group [of Pythagoreans] say that the basic principles are ten, which they describe as a series of pairs... Alcmaeon of Croton seems to have thought of things the same way, and either he inherited this theory from them or they from him, for Alcmaeon spoke rather like them, saying that most human matters are twofold."
B. (Manuscript variant) "Alcmaeon of Croton seems to have thought of things the same way, and either he inherited this theory from them or they from him, for in terms of his time period Alcmaeon was around after Pythagoras [was] old. And he spoke rather like them, saying that most human matters are twofold."

4. Favorinus of Arelate 2nd century CE
via Diogenes Laertius, *Lives* 8.83
"It is believed he was the first to write a discourse on nature in prose, as Favorinus says in his *Miscellaneous History*."

5. Clement of Alexandria, *Stromata* 1.78.3 3rd century
"At any rate Alcmaeon the son of Peirithos, from Croton, was the first to write a discourse on nature in prose."

6. Diogenes Laertius, *Lives* 8.83 3rd century
"Alcmaeon of Croton also heard Pythagoras teach."

7. Iamblichus, *The Pythagorean Life* 104 4th century
"Members of this school, and especially the most ancient, who were contemporaries and young students of Pythagoras when he was old – Philolaus, Eurytus, Charondas, Zaleucus, Bryson, Archytas the elder, Aristaeus, Lysis, Empedocles, Zalmoxis, Epimenides, Milo, Leucippus, Alcmaeon, Hippasus, Thymaridas, and their contemporaries… [wrote in an elevated style]."

Alcmaeon is a challenging figure to date precisely, given the absence of anecdotes about his life and deeds. As a citizen of Croton he must have known Pythagoras, and it is plausible that he heard him teach (3.B, 6, 7). But was he more or less contemporary with the sage, active, say, between 520 and 470 BCE? Or was he engaged in teaching after Pythagoras' death, his floruit in that case falling closer to the period 470–440? To decide we must rely on scattered clues and estimates of where his theories fit within the development of ideas.[336]

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[336] Guthrie 1962, 341–3, 357–359, placed Alcmaeon's birth around 510 BCE, which is, I think, about right. Burkert 1972, 292, Kirk, Raven, and Schofield 1983, 339, and Zhmud 2012, 122, have him publishing his book around 500, as does Wachtler 1896. Mansfeld 2013, 78n1 put him relatively late, around 440. For a helpful overview of the question, see Huffman 2017.

Two early pieces of evidence provide us with a rough *terminus ante quem* for Alcmaeon's mature years. In the opening of his treatise he addresses himself to three individuals named Brotinus, Leon, and Bathyllus (1). The trio are obviously contemporaries and addressed from a position of authority, perhaps indicating Alcmaeon was a bit older than them. Leon and Bathyllus are probably the same as the Leon of Metapontum and the Bathylaus of Posidonia mentioned in Iamblichus' catalogue of Pythagoreans (*The Pythagorean Life* 267) but otherwise unknown. Brotinus (or Brontinus) of Metapontum is somewhat less of a cipher. Our earliest source, Aristoxenus, regarded him as the husband of Theano.[337] There is a near consensus in our sources that Theano was Pythagoras' wife; the fact that Aristoxenus' claim would give Theano two husbands can be explained by appealing to an early tradition that Theano remarried after Pythagoras' death.[338] Such a relationship would imply that Brontinus was middle-aged or older during the 470's and 460's BCE. If Alcmaeon was Brontinus' peer or senior, then 460 can be treated as a *terminus ante quem* for his prime years.

A second terminus comes from Theophrastus' review of early theories of perception, which takes up the ideas of Alcmaeon, Anaxagoras, Cleidemus, Diogenes, and Democritus in that order.[339] Since Anaxagoras, Diogenes, and Democritus are given in correct chronological sequence, it is fair to assume that Alcmaeon is too. If Alcmaeon's work predated Anaxagoras', his treatise was published before 463, and he was likely born no later than the last decade of the 500's.

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[337] Diogenes Laertius, *Lives* 8.42; Iamblichus, *The Pythagorean Life* 267. The tradition that Brontinus was Theano's father has no early authority.

[338] Iamblichus, *The Pythagorean Life* 266. In the next volume in this series I will discuss this passage at length and demonstrate its early provenance.

[339] See pages 23/4.

A rough *terminus post quem* for Alcmaeon's lifetime can be inferred from Isocrates' capsule review of the "sophists" who proposed specific figures for the number of basic entities in the world (2). His list of savants starts with Anaxagoras, who thought there were endlessly many, and concludes with Gorgias, who argued that there were none. Though the order is not chronological, the thinkers who are named form a chronological cluster, the earliest and latest separated by less than 40 years. Arranged by estimated date of birth and acme they run as follows:

Parmenides	ca. 515 and 475 BCE
Anaxagoras	ca. 500 and 460
Empedocles	ca. 495 and 455
Zeno	ca. 495 and 455
Melissus	ca. 495 and 455
Ion	ca. 485 and 445
Gorgias	ca. 480 and 440

Let's suppose that we possessed no other evidence for Alcmaeon's chronology, and had no idea where he might fall in this list of related thinkers. In that circumstance we would put the odds of his occupying the top position rather low – about 1-in-8, since there are a total of eight slots where he might fall. That is to say, we would consider it possible but very unlikely that he was older than Parmenides. Now we have good reason to believe that Alcmaeon was in fact older than Anaxagoras. If we combine the two claims 'probably not older than Parmenides' and 'probably older than Anaxagoras' the result is that Alcmaeon was roughly Parmenides' coeval. Hence we might place his year of birth close to Parmenides', in the 510's, and the publication of his treatise between 475 and 460.

Another cluster-dating points in the same direction. During the fifth-century BCE the list of phenomena which early Greek natural philosophers ventured to explain underwent an expansion. In particular, it became *de rigeur* to treat two biological subjects: the functioning of the organs of sensation, and the mechanisms of human reproduction, including how gender is determined. A roster of the earliest thinkers to treat both of these topics closely resembles the list given above:

Parmenides	ca. 515 and 475 BCE
Anaxagoras	ca. 500 and 460
Empedocles	ca. 495 and 455
Diogenes	ca. 485 and 445
Democritus	ca. 460 and 420

Alcmaeon belongs on this list too, since he elaborated theories of sense perception and fetal development. Following the same chain of reasoning as before we may conclude, once again, that he was either Parmenides' coeval or a bit younger than him.[340]

Some support for this dating comes from an unexpected direction: the evolution of Greek sculptural technique. Alcmaeon was the first Greek thinker to write about the role that veins and 'channels' (πόροι) played in the functioning of the body.[341] The most important early sculptor to hail from Magna Graecia, Pythagoras of Rhegium, was also the first to make an effort to represent the veins of the body accurately (Pliny, *Natural History* 34.59). His statues of Olympic victors can be dated with

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[340] Galen offers a list of early writers on nature – Melissus, Parmenides, Empedocles, Alcmaeon, Gorgias, and Prodicus (*On the Elements*, 487 Kuhn) – with a similar clustering of names.

[341] Theophrastus, *The Senses* 26, and ps.-Plutarch, *Opinions of the Natural Philosophers* 909d.

a high degree of confidence to the period 480 to 448.[342] While it is obviously impossible to say which man influenced the other, it seems appropriate that curiosity about the veins should have be expressed in two very different fields of culture at the same time.

A reference to Alcmaeon in Aristotle's *Metaphysics* offers further confirmation for this chronology even if, as many scholars believe, it is not a genuine part of the Stagirite's text (3.A, B; cf. 7). After observing that Alcmaeon either influenced or was influenced by unnamed Pythagoreans, the text makes the claim that Alcmaeon was alive "after Pythagoras [was] old." This sentence is not found in all manuscripts of the *Metaphysics* and seems to have been unknown to the early commentator Alexander of Aphrodisias.[343] Sinc it also contravenes the general rule that Aristotle does not cite Pythagoras by name, the most prudent conclusion is that it was not originally part of Aristotle's text. That said, it is not entirely devoid of value since it shows that some late-antique scholar believed that the period when Alcmaeon was alive fell "after Pythagoras [was] old."[344] Pythagoras became an old man around 500 BCE, so this indication would place Alcmaeon's adult years in the decades following.

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[342] For a discussion and survey of previous scholarship on Pythagoras of Rhegium, see Nicholson 2016, 152–154. The suggestion that the sculptor Pythagoras influenced Alcmaeon is mooted by Dunbabin 1948, 370.

[343] See Guthrie 1962, 341/2 for a summary of the debate.

[344] The addition of this sentence has the effect of synchronizing Alcmaeon with the so-called Pythagoreans: the reason Aristotle is uncertain about the direction of influence is that Alcmaeon was alive during Pythagoras' old age, i.e. just like the early Pythagoreans. Without the sentence in question the temporal interval between Alcmaeon and the Pythagoreans remains unspecified. Note too that Alcmaeon's era is placed ἐπὶ γέροντι Πυθαγόρᾳ, "after Pythagoras [became] an old man," not "while" or "when" he was old, as most translators understand it; the latter would require ἐπί + genitive.

A final statement with chronological implications is Favorinus' claim that Alcmaeon was the first author to compose a treatise on nature in prose (4; cf. 5). This piece of trivia is less helpful than it may seem at first glance due to lurking uncertainty about the source for this report and what that source understood a treatise on nature (φυσικὸς λόγος) to be. Pherecydes' treatise would presumably have been classified as a work on 'theology' rather than nature; but what about Heraclitus' treatise, or Anaximander's? If these could be considered writings on 'nature', then Favorinus' statement would imply that Alcmaeon was writing as early as the 510's BCE. But it seems to me more likely that Favorinus or his source was alluding to the fact that Alcmaeon was the first to treat in prose all of the topics in what later became the curriculum of natural philosophy – underlying principles (as per Isocrates' remark), cosmogony, astronomy, meteorology, the nature of the soul, the generation of animals, and the functioning of the sense organs (as per the discussion above). According to Iamblichus (*Pythagorean Life* 166) the first *poets* to discuss τὰ φυσικά were Parmenides and Empedocles, which may give us a sense of the connotations of the term. If we may trust the late testimonia in (4) and (5), Alcmaeon was apparently considered the first prose-writer to do so.

By the principle of 'oldest-first', the arguments that should be afforded the most weight are the indirect dating of Alcmaeon by his relationship to Brotinus, Theophrastus' doxographic hint, and the cluster-dating of the thinkers named by Isocrates. As we saw above, we can accommodate all these indications by placing Alcmaeon's birth in the 510's BCE, and his floruit in the 470's. The sentence in the *Metaphysics* is broadly consistent with such a date, though too vague to lend it much support. By this reckoning Alcmaeon would be about the same age as Parmenides, and a decade or two older than figures like Anaxagoras, Empedocles, and

Zeno. Leon, Bathyllus, and Brontinus will be his younger contemporaries. His treatise can be dated to the decade 475 to 465.

Estimated objective dates

510's BCE: born
470's or 460's: composes treatise on nature

HIPPASUS OF SYBARIS

1. Glaucus of Rhegium, *Ancient Poets and Musicians*
5th century BCE
via Aristoxenus, via scholia to Plato's *Phaedo* 108d
"A certain Hippasus constructed four bronze disks in such a way that while their diameters were equal, the thickness of the first disk was four-thirds that of the second, three-halves that of the third, and double the fourth; when they were struck they produced a certain harmony. It's said that Glaucus, when he saw the sounds coming from the disks, was the first to attempt to play them, and based on this practice even now people speak of the so-called 'art of Glaucus'. Aristoxenus mentions this in his book, *Listening to Music* [or: *Music Lecture*]."

2. Aristotle, *Metaphysics* 1.3 984a7 4th century
"Hippasus of Metapontum and Heraclitus of Ephesus said [the basic principle] was fire."

3. Eudemus of Rhodes, *The History of Geometry* 4th century
via Iamblichus, *On Nicomachus' Introduction to Arithmetic*

100.19–25[345]
"Of old, in the time of Pythagoras and his contemporary mathematicians, there were only three means, the arithmetic, the geometric, and, in third place, what at one time was called the subcontrary, but was renamed the harmonic mean by men like Archytas and Hippasus."
Cf. ibid. 113.16, 116.1, where Archytas and Hippasus are also paired.

4. Neanthes of Cyzicus — 4th century
via Diogenes Laertius, *Lives* 8.55
"But [Neanthes] did not say which of the Pythagoreans in particular it was whom Empedocles heard teach; for, he said, a letter in circulation under Telauges' name to the effect that he was a partner of Hippasus and Brontinus should not be deemed credible."

5. Apollonius, son of Molon (?) — 1st century BC?
via Iamblichus, *The Pythagorean Life* 257
"Their kinsmen grew increasingly upset and angry at the fact that they would only lend a hand to other Pythagoreans, not to any family members except their parents, and that they shared their wealth in common but kept it out of their control. Once they started quarreling the rest of the people turned hostile. From among The One-Thousand, Hippasus, Diodorus, and Theages spoke in favor of sharing offices and roles in the assembly and of the archons being accountable to people chosen from the full community."

6. Theon of Smyrna, *Explanation of Mathematical Topics etc.* 59.7 — 2nd century CE

[345] The Eudemian provenance of this passage is demonstrated by Zhmud 2006, 172–174.

"Lasus of Hermione, as they say, and people like Hippasus of Metapontum, who was a Pythagorean, paid attention to the fast and slow components of the motions that produce harmonies…"

7. Iamblichus, *Mathematics as a General Science* 77.18 4th century
"As for Hippasus, they say that he was one of the Pythagoreans, but because he was the first to make public and describe the sphere made of 12 hexagons (sic), he perished at sea like a man who had committed impiety; while he acquired a reputation as the discoverer, everything really came from 'The Man'. (That is how they refer to Pythagoras; they do not call him by his name). He advanced mathematics, since a pair of men were produced who made considerable progress, Theodorus of Cyrene and Hippocrates of Chios."

8. John Malalas, *Chronography* 167.7–11 6th century
"At the same time lived Hippasius (sic), the Pythagorean philosopher, who first introduced a celestial sphere made of twelve zodiacal signs and died at sea in a shipwreck. Isocrates was alive then and Pericles and Thucydides who wrote the war of the Peloponnesians and the Athenians."

9. the *Suda*, 'Herakleitos' (*eta*-472) 10th century
"Some said that [Heraclitus] heard Xenophanes teach, and Hippasus the Pythagorean."

Despite the swirl of legends that attached to his name (7, 8), Hippasus was a historical figure, an early Pythagorean.[346] He is sometimes dated

[346] For prior attempts to date him, see especially Zhmud 2012, 124–126, and Burkert 1972, 206; the former places his mature years around 500 BCE, the latter, in the first half of the fifth-century.

quite early – to the end of the sixth-century – based on a passing reference to him in Aristotle (2). However, the evidence of other sources, including one that predates Aristotle, shows quite clearly that his mature years fell in the middle decades of the fifth-century.

In a famous review of his predecessors' thoughts on first principles in the *Metaphysics*, Aristotle has Hippasus and Heraclitus subscribing to the view that fire is the foundation of all things (2). In three other cases where he names thinkers in pairs (Thales/Hippo, Anaximenes/Diogenes, Leucippus/Democritus) the order is clearly chronological; the implication seems to be that Hippasus was the elder of the two.[347] Consistent with this view, the *Suda* makes Hippasus Heraclitus' teacher (9). If Hippasus was in fact older than Heraclitus, he would have to be very early indeed – an exact contemporary of Pythagoras, who was himself not much older than the Heraclitus, and so in his prime in the 510's BCE, give or take a decade. But the evidence of Aristotle is far from probative. Aristotle often departs from chronological sequence in his surveys of prior thinkers, sometimes for no obvious reason.[348] As a practical matter, it is also hard to imagine what kind of actionable chronological information would have allowed him to distinguish the eras of Hippasus and Heraclitus, and declare the former earlier, assuming both were active in the 510's or 500's. Heraclitus' biography was veiled in a cloud of uncertainty, and Hippasus left behind no written treatise. It is also worth noting that in the Aëtian tradition, which descends from Theophrastus, the order of names is given as Heraclitus and Hippasus, which might represent a correction of Aristotle.[349]

Other early dating clues are much more clear-cut, and point to a lower chronology. The most valuable of these comes from a fragment of

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[347] Cf. the discussion on page 22.

[348] See page 251 for a prime illustration of this, and the discussion on pages 22/3.

[349] Stobaeus, *Selections* 10.10.13; cf Diels 1879, 283.

Aristoxenus that draws on the writings of Glaucus of Rhegium, who was active in the last third of the fifth-century. According to this report Hippasus manufactured a set of metal discs that produced concords when struck; Glaucus noticed this harmony and attempted to make music from the apparatus (1). The key detail in this story is that Hippasus fashioned the metal disks, while Glaucus 'saw' or 'noticed' (ἰδόντα) the sounds emanating from them and recognized their potential as a musical instrument. If this apparatus was something Hippasus made and owned, which seems to be implied, and Glaucus attempted to play it after seeing it, then Glaucus must have been personally acquainted with the philosopher. On this interpretation the two men were contemporaries and Hippasus' lifetime should fall in the middle or last third of the fifth-century.[350]

Additional early evidence for Hippasus' life comes from a letter that represented Empedocles as a member of Hippasus' and Brotinus' circle (4).[351] This document predated Neanthes, who was active in the late fourth-century, and thus has some value as an early witness to perceived Pythagorean chronology even though Neanthes considered it a forgery. We can infer from it that Hippasus was a peer of Brotinus and perhaps a bit older than Empedocles. I argued above that Brontinus was probably a

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[350] Barker 2007, chapter 3, provides essential context for this anecdote. Unfortunately Barker separates Glaucus from Hippasus in time (84), claiming that Glaucus heard about Hippasus' disks via oral tradition and recreated them for himself. But such a gap is not mentioned in the story we have; its existence only follows from Barker's assumption that Hippasus' floruit fell close to 500 BCE. His further claim (85) that Glaucus' book only discussed musicians from the Archaic era is belied by reports that Empedocles and Democritus were mentioned in his work (EMPEDOCLES 3, DEMOCRITUS 2).

[351] The verb μετέσχεν + single persons in the genitive is an unusual construction, but should mean to be a partner or member of a group.

middle-aged man in the 460's BCE.[352] In terms of dates this would mean Hippasus was born around 500, with his floruit likely falling in the 460's.

A less precise but no less telling clue to Hippasus' chronology comes from a passage in Iamblichus that, as Leonid Zhmud has shown, derives from Aristotle's student Eudemus' work on the history of geometry (3).[353] While discussing the early history of the theory of means, Eudemus distinguished between the terminology for different means used by "Pythagoras and his contemporary mathematicians," and that which was later employed by Archytas and Hippasus. The clear implication is that Hippasus was *not* one of Pythagoras' contemporaries, and that his period of activity fell closer in time to Archytas, who was born ca. 420 BCE. While Hippasus certainly predated Archytas, his work on means is associated here with the late fifth-century flourishing of Greek geometry.

Several late sources lend support to this lower dating. Theon of Smyrna indicates that Hippasus postdated Lasus of Hermione (6). Iamblichus speaks as if Theodorus and Hippocrates, who were active in the 420's, 410's, and 400's BCE, were the leading geometers in the generation after Hippasus (7).[354] A passage in John Malalas that seems to have escaped the attention of scholarship is also telling. Malalas associates Hippasus with figures like Isocrates (born 438), Pericles (active ca. 460 to 430), and the historian Thucydides (8). While not a reliable source for early Greek history in general, here Malalas seems to have come across some rather specific information that cuts against the late tendency to backdate Pythagoras and his school. It is also worth noting that the philosophers listed in Diogenes Laertius' eighth book, which treats Pythagoras and his students, can be divided into those who 'heard

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[352] See page 281.

[353] Zhmud 2012, 265/6.

[354] As Von Fritz 1945, 245, has noted.

Pythagoras teach', and those who merely bear the label 'Pythagorean'. The former set includes Epicharmus, Alcmaeon, and Empedocles, who were indeed old enough to have overlapped with Pythagoras; the latter include Philolaus, Archytas, and Eudoxus, who belong to the period after his death.[355] Since Hippasus is called a Pythagorean by Diogenes (8.84) but *not* identified as someone who had heard Pythagoras teach, he would seem to belong to the second group, the epigones of Pythagoras. The story that he died in a shipwreck unfortunately cannot be dated (7, 8), but suggests that he did not live into deep old age.

On the balance it would appear that Hippasus' prime fell in the 450's BCE and that he was still active in the 440's and 430's, which would make him Empedocles' peer and about a generation older than Philolaus.

Estimated objective date:

500's BCE:	born
450's, 440's, 430's:	active, meets Glaucus of Rhegium

LEUCIPPUS OF ELEA/MILETUS

1. Theophrastus 4th century BCE

A. via Simplicius, *On Aristotle's Physics* 25.1

"Diogenes of Apollonia, who was more or less the youngest of those who taught these subjects, wrote about most of them in an eclectic manner, sometimes talking like Anaxagoras, sometimes like Leucippus."

B. 28.4

"Leucippus of Elea or Miletus – he is given both appellations – after sharing Parmenides' philosophy, did not follow the same path as

[355] *Lives* 8.54, 78, 83; and 79, 84, 91.

Parmenides and Xenophanes regarding beings, but, it would seem, the very opposite one."

2. Clement, *Stromata* 1.64.2 3rd century CE
"Parmenides was a student of Xenophanes, Zeno his student in turn, and then came Leucippus, then Democritus."

3. Diogenes Laertius, *Lives* 9.30, 34 3rd century
A. "Leucippus heard Zeno teach."
B. "After king Xerxes was entertained by his father and left ministers with him, as Herodotus says, Democritus heard some of the Magi and Chaldeans teach; he learned theology and astronomy from them while he was a boy. Later on he studied with Leucippus and Anaxagoras, according to some, being forty years the latter's junior."

4. Hippolytus, *Refutation of All Heresies* 1.12.1 3rd century
"Leucippus the companion of Zeno"

5. Iamblichus, *The Pythagorean Life* 104 4th century
"Young men who studied with the elderly Pythagoras: Philolaus and Eurytus… Leucippus and Alcmaeon."

The evidence for Leucippus' life is very meager, with no datable events to speak of. His teacher is variously identified as Pythagoras (5), Parmenides (1.B), or Zeno (2, 3.A), but of these three claims only the second goes back to Theophrastus. A Hellenistic succession-writer who wanted to join the atomists to the Eleatics in a chain without loose ends was likely responsible for the statement that he was a student of Zeno; Iamblichus' claim about his link to Pythagoras is late and backed by no early witnesses. According to the most authoritative tradition, then,

Leucippus was a disciple of Parmenides (1.B), a peer of Zeno (4), roughly contemporary with Anaxagoras (1.A, 3.B), and an influence on Diogenes of Apollonia and Democritus (1.A, 2, 3.B). We can accommodate all of these indications by placing Leucippus' year of birth in the 490's BCE and having him teach in the 440's and 430's.[356] This chronology can also help resolve Theophrastus' uncertainty over Leucippus' city of origin. Miletus was sacked by the Persians in 494. We might posit that as a child he was a Milesian refugee whose family took him west and settled in Elea, which is where he eventually met Parmenides.

Estimated objective dating

490's BCE:	born; displaced from Miletus?
440's, 430's:	teacher of Diogenes and Democritus

OENOPIDES OF CHIOS

1. Democritus 5th century BCE
via Diogenes Laertius, *Lives* 9.41
"[Democritus] should thus be a contemporary of Archelaus the student of Anaxagoras and of people like Oenopides, whom he in fact mentions."

2. Plato, *Rival Lovers* 132a 4th century
"I went to the residence of Dionysius the schoolteacher, and there I saw some young men, children of respectable fathers, supposedly the best looking, together with their lovers. Two of the teens happened to be arguing, although about what, I wasn't able to hear. It certainly looked

[356] Guthrie 1965, 384, comes to similar conclusions.

like they were arguing about Anaxagoras, or Oenopides: in particular, they seemed to be drawing circles and mimicking inclinations by tilting their hands; and they were very serious."

3. Eudemus of Rhodes, *History of Geometry* 4th century
via Proclus, *On the 1st book of Euclid's Elements* 65.21
"After Pythagoras, Anaxagoras of Clazomenae touched on many geometrical topics, as did Oenopides of Chios, who was a little younger than Anaxagoras; Plato in the *Rival Lovers* refers to them as men with some reputation in the mathematical sciences. After them, Hippocrates of Chios discovered the squaring of the lune…"

4. Aelian, *Miscellaneous History* 10.7 3rd century CE
"The astronomer Oenopides of Chios dedicated at Olympia a bronze tablet on which he had inscribed the astronomy of the 59 years, claiming that this is the Great Year. The astronomer Meton of Leuconoe dedicated stelae…"

5. anonymous, *Life of Ptolemy* 95.12–16 3rd century (?)
"[Oenopides] received recognition at the conclusion of the Peloponnesian War, at the same time as the orator Gorgias was alive, and Zeno of Elea, and, some say, the historian Herodotus of Halicarnassus."

Regarding Oenopides' life few details survive, save for mentions of a visit to Egypt and erection of a stele at Olympia on which his lunar-solar 'great year' was displayed (4).[357] Nevertheless, the era in which he was active can be identified with some confidence. If he was an older

[357] Egypt: Diodorus Siculus, *Library of History* 1.98.3. See Bodnar 2007 for a collection of Oenopides' fragments.

contemporary of Democritus (1) and "a little younger" than Anaxagoras (3; cf. 2), his year of birth should fall in the period 495 to 460 BCE, and closer to its beginning than to its end; this would put his acme around 455 to 440. Item (5) puts his year of recognition in the final years of the Peloponnesian War, when Gorgias, Zeno, and Herodotus were active. The reference here must be to the Thirty Years' Peace, the treaty between Athens and Sparta that was agreed to in 446/5. Jerome dates this to 445/4 (113[b]) and, tellingly, places Herodotus' public recognition at Athens in the same year (113[c]). Aelian suggests that Oenopides proposed his 'great year' earlier than Meton did (4); Meton's was probably introduced in 432. Oenopides' journey to Egypt probably took place after 450, when the Peace of Callias and the end of Athenian military intervention made travel there less hazardous; Herodotus' visit to Egypt is commonly dated to the same time. Taken together, these various data suggest that Oenopides' main period of activity fell in the 440's and 430's.

Estimated objective dates:

around 490 BCE:	born
440's to 430's:	visits Egypt, Olympia, publishes treatise

ARCHELAUS OF ATHENS OR MILETUS

1. Ion of Chios — 5th century BCE
via Diogenes Laertius, *Lives* 2.23
"Ion of Chios says that when [Socrates] was a young man he traveled to Samos with Archelaus."

2. Aristoxenus — 4th century

via Porphyry, *History of Philosophy*, via the *Suda*, 'Sokrates' (*sigma*-829)
"Aristoxenus says that at first Socrates heard Archelaus teach; in fact he was his boy-lover, and was very devoted to sex, but free of wrong-doing, as Porphyry says in his *History of Philosophy*."

3. Theophrastus 4th century
via Simplicius, *On Aristotle's Physics* 27.23
"Archelaus of Athens, whom they say Socrates met, and who was a student of Anaxagoras…"

4. Diogenes Laertius, *Lives* 2.16, 9.41 3rd century CE
A. "Archelaus of Athens, or Miletus. His father was Apollodorus or, as some say, Midon. A student of Anaxagoras, and teacher of Socrates."
B. "[Democritus] would thus be alive at the same time as Archelaus the student of Anaxagoras."

5. Porphyry, *History of Philosophy* 3rd century
via Theodoret, *Cure for the Maladies of the Greeks* 315.18
"Of Socrates it was said that as a boy he did not live a very good or orderly life… At the age of 17 Archelaus the student of Anaxagoras approached him, calling himself his lover; and Socrates did not reject Archelaus' advances or his company, but spent many years with him, and in this way Archelaus inspired his turn to philosophy."

6. Eusebius, *Preparation for the Gospel* 10.14.13 4th century
"Anaxagoras had three associates, Pericles, Archelaus, and Euripides… Archelaus was the successor to Anaxagoras' school at Lampsacus, and after moving to Athens set up a school there and had many Athenian associates, including Socrates."

Archelaus' status as a student of Anaxagoras and a teacher of Socrates allows us to split the difference between their ages and place his birth within a decade of 485 BCE (3, 4.A, 5). If we want to press the claim that he was a contemporary of Democritus (4.B), we should place his birth later in that range, 485 to 475. A story cited by Aristoxenus (2) and perhaps going back to Ion (1) had Archelaus initiating an erotic relationship with Socrates; Porphyry maintained that it began when the latter was 17, hence in 453 (5); given the range just established, Archelaus could have been anywhere from 37 to 22 years old at the time.[358] It has been plausibly conjectured that the purpose of their trip to Samos was to visit Melissus (1).[359] Eusebius implies that Archelaus was actively teaching in Athens after Anaxagoras' death at Lampsacus (6); but were that the case, surely we would have more references to Archelaus' doings in the city from e.g. the comic poets. In fact there are no other datable events in his biography. It seems more likely that Archelaus either died in his fifties or spent the remainder of his life in Lampsacus, without returning to Athens.

Estimated objective dates:

480's BCE:	born
around 450:	relationship with Socrates
430's?:	publishes treatise on nature

DIOGENES OF APOLLONIA

1. Diogenes of Apollonia — 5th century BCE

[358] But see Woodbury 1971, who is appropriately skeptical of this story.
[359] Graham 2008.

via Stobaeus, *Anthology* 1.24.1
"Diogenes: stones often fall to the earth and are extinguished, like the flaming star made of stone which came down at Aegospotami."

2. Theophrastus, *Physics* 4th century
via Simplicius, *On Aristotle's Physics* 25.1
"Diogenes of Apollonia, who was more or less the youngest of those who lectured on these subjects, wrote about most of them in an eclectic manner, sometimes talking like Anaxagoras, sometimes like Leucippus."

3. Antisthenes, *Successions* 2nd century
via Diogenes Laertius, *Lives* 9.57
"Diogenes of Apollonia heard Anaximenes teach, Antisthenes says, and he lived at the same time as Anaxagoras."
cf. Augustine *City of God* 8.2

4. Clement, *Protreptic* 5.64.2 3rd century CE
"Anaximenes, whom Diogenes later followed, said the basic principle is air."

We have five clues to Diogenes' dates. First, he referred to the meteorite fall at Aegospotami as evidence for his theories of the celestial bodies, which indicates that he was active after 468 BCE (1). Secondly, Theophrastus had him adopting ideas from Anaxagoras and Leucippus (2), which should make him younger than both. Leucippus' dates are less securely attested than Diogenes', but being later than Anaxagoras entails that he was born after 500 and in his prime after the 460's. Third, Theophrastus describes Diogenes as "more or less the youngest" of the natural philosophers, which should imply he came after Archelaus, the last regular member of the Ionia succession, who was born in the 480's

(2). Fourth, the succession-writer Antisthenes claimed that Diogenes was a student of Anaximenes (3, cf. 4). Such a relationship encounters no chronological obstacles, since Diogenes was active in the 5th century and Anaximenes, as I argued above, was still alive in the 460's.[360] For this relationship to hold, Diogenes' year of birth should fall before 480, probably in the late 480's. Finally, apparent allusions to Diogenes' theories can be found in Aristophanes' *Clouds*, first produced in 423.[361] This shows that his work was known in Athens by that date, and perhaps as much as a decade earlier. His most productive years thus seem to have been centered on the 430's.[362]

Estimated objective dates:

480's BCE:	born
460's:	studies with Anaximenes
430's:	publishes treatises

HIPPO OF SAMOS

1. Aristotle 4th century BCE

A. *The Heavens* 2.13, 294a28

"Some say that the earth rests on water; for this is the most ancient theory tradition preserved for us, one they say Thales of Miletus taught, the earth remaining in place because it floats just like a plank or

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[360] Note that Panzerbieter 1830, 1–13, in a careful discussion of Diogenes' chronology, concluded from this connection that Anaximenes must have been alive around the end of the sixth-century (12).

[361] See Dover 1970, on lines 96, 230, 264.

[362] Guthrie 1965, 362, comes to a similar conclusion regarding his dates.

something else of that sort, for in fact none of these things is naturally able to rest on air, only on water."

B. *The Soul* 1.2, 405b1

"Some of the more commonplace thinkers taught that the soul is water, like Hippo did. He was apparently convinced by the seed and the fact that in all creatures it is moist; he even refutes those who would claim that the soul is blood based on the fact that the seed is not blood."

2. Menon (?) 4th century

via *Anonymous Londoniensis* 11.22

"Hippo of Croton thinks we have an innate moisture through which we perceive…"

3. scholia to Aristophanes, *Clouds* 96 Byzantine

"Previously Cratinus in his play *The All-Watchers* spoke these lines in order to make fun of the philosopher Hippo."

Hippo was a Pythagorean, according to Aristoxenus, an early and credible authority on such matters.[363] Yet he wrote in the Ionic dialect, was a citizen of Samos, and had few obvious Pythagorean preoccupations – an interesting figure, then, with a foot in both the Italian and the Ionian traditions of natural philosophy. To date him we have three clues. In passage (1.A) Aristotle states that "some people" believed that the earth rests on water, and that these same people cite Thales as an authority for this opinion. Hippo is the only figure besides

[363] Hippo of Samos appears in Iamblichus' catalogue of Pythagoreans (*The Pythagorean Life* 267). The fact that Aristoxenus identified Samos as Hippo's home polis (Censorinus, *The Day of Birth* 5.2) against some who said he was from Metapontum confirms that the entry in Iamblichus goes back to Aristoxenus – and Hippo's Ionic dialect suggests that Aristoxenus was right.

Thales to whom this idiosyncratic doctrine is ascribed (cf. Simplicius, *On Aristotle's Physics* 23.28); it follows that Aristotle's "some" is a reference to Hippo and that Hippo is the one who appealed to the authority of Thales. Aristotle then adds the parenthetical remark that air, unlike water, is not capable of holding up the earth. This belief cannot be Aristotle's since it was not his view that the earth rested on any of the elements; the polemical note ought instead to derive from his source, that is to say, from Hippo. The first philosophers to maintain that the earth was supported by air were Anaximenes and Anaxagoras, who came to prominence in the 460's B.C.E; Hippo should accordingly be dated later.

Aristotle also mentions that Hippo tried to refute those of his predecessors who claimed that the soul was blood (1.B). Since this doctrine most closely resembles that of Empedocles (Cicero, *Tusculan Disputations* 1.41/2), we can regard Empedocles' acme in the 450's as a *terminus post quem* for Hippo's work and posit that it was published no earlier than the 440's.

A further clue to Hippo's chronology is provided by the fact that the author of the *Anonymous Londoniensis* includes him in a long catalogue of early medical writers (2). The acme-ranges for the oldest datable figures in this catalogue are as follows:[364]

Herodicus of Selymbria:	ca. 450 to 420 BCE
Euryphon of Cnidus:	ca. 440 to 400
Herodicus of Cnidus:	ca. 440 to 420
Philolaus of Croton:	ca. 430 to 390
Hippocrates of Cos:	ca. 420 to 370

[364] The dates are taken from the relevant entries in Keyser and Irby-Massie 2008.

This catalogue suggests that systematic discussions of disease theory were a novelty prior to 440. Unless Hippo was exceptionally innovative, he period of activity should come later.

A *terminus ante quem* can be inferred from a report that Cratinus ridiculed him in a play (3). Cratinus' career as a playwright began around 455 and ended in 423 BCE; the play in question, the *All-Watchers*, probably belongs to the late 430's.[365] Since comic poets tended to direct their sharpest attacks at contemporaries rather than figures from the remote past, Hippo is likely to have won recognition for his philosophy around this time.[366] By combining these three indications we may date his moment of fame at Athens and the recognition of his theories to the 430's. The timing of his life, and the fact that he is assigned multiple places of residence (Samos, Metapontum, Rhegium), suggests that he was an exile, perhaps a victim of the violent attacks on the Pythagorean communities that took place a few years after 440.[367]

Estimated objective dates:

around 440 BCE:	exiled from southern Italy
430's:	composes treatise; mocked in a play by Cratinus

ANTIPHON OF ATHENS

1. Plato (comic poet), *Peisander* 422/1 BCE[368]

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[365] Pieters 1946, 164.

[366] For this line of argument, see Zhmud 2012, 127.

[367] Hippo of Samos or Metapontum (Censorinus, *The Day of Birth* 5.2), Rhegium (Sextus Empiricus, *Outline of Pyrrhonism* 3.30). I will make the case for a dating of the attack ca. 440–435 BCE in the next volume in this series.

[368] See Sommerstein 2000, 437–51, for date.

via pseudo-Plutarch, *Lives of the Ten Orators* 833c
"Plato the comic poet made fun of [Antiphon's] fondness for money in his *Peisander*."
Cf. Aristophanes, *Wasps* 1270, 1301.

2. Thucydides, *History of the Peloponnesian War* 8.68 5th century
"But the one man who understood how the entire action would lead to this point and had pondered it most deeply was Antiphon, a man second to none among his contemporary Athenians in personal excellence, as well as the most forceful when it came to thinking and expressing what he had decided. He never came before the populace or any other competitive assembly willingly, since most people viewed him with suspicion due to his reputation for intellectual brilliance; but for those involved in disputes, whether in the courtroom or among the people, he was the one man most capable of delivering help, no matter who it was or what deliberations they shared."

3. Xenophon, *Recollections* 1.6.1 4th century
"One owes it to Socrates not to leave aside what he said in his conversations with the sophist Antiphon. For Antiphon once went up to Socrates when some companions of his were around whom he wanted to steal and spoke as follows…"

4. Aristotle, *Poetry* 4th century
via Diogenes Laertius, *Lives* 2.46
"Aristotle says in the third book of his *Poetry* that a certain Antilochus of Lemnos and the omen-seer Antiphon picked fights with [Socrates]…"

5. Antiphon biographies (Caecilius of Caleacte?) 1st century(?)
A. pseudo-Plutarch, *Lives of the Ten Orators* 832c–f

"[Antiphon] studied with his father; for his father was a sophist, who Alcibiades studied with while still a boy… He wrote speeches for citizens who needed them in legal contests and was the first to go this route, as some say; at any rate none of his predecessors have legal speeches that are in circulation, nor do any of his contemporaries, because they were not yet in the habit of writing – not Themistocles, not Aristides, nor Pericles… And if one goes as far back in time as possible and recalls all those who made an effort to write in this genre, one finds that their lives overlapped with Antiphon when he was an old man; for example, Alcibiades, Critias, Lysias, and Archinous… [Antiphon] was alive at the time of the Persian Wars and the sophist Gorgias, being a little younger than him; he lasted until the democracy was dissolved by the Four-Hundred."

B. Photius, *Library* 259, 486a

"The period of time when he was in his prime was the one in which the Persian Wars were successfully concluded; he was a little earlier than the sophist Gorgias. His life lasted until the democracy was dissolved by the Four-Hundred."

C. anonymous, preface to Antiphon's speeches, 39.2

"He lived during the Persian Wars and was in his prime at the same time as the sophist Gorgias."

D. the *Suda*, 'Antiphon' (*alpha*-2745)

"[Antiphon] initiated the law-court style, following Gorgias."

If Antiphon the sophist, author of the treatise *On Truth*, is distinguished from the logographer and quondam politician Antiphon of Rhamnus, no clues regarding the former's chronology are available other than the fact that he was a contemporary of Socrates (3, 4).[369] But if the two

[369] Pendrick 2002, 26.

personae were different aspects of the same man, the evidence for his life, especially the end of it, becomes quite rich.[370] The following discussion of the evidence assumes the truth of the unitarian position (which strikes me as more compelling).

Antiphon was the butt of jokes on the Athenian stage ca. 422 BCE – the earliest securely datable moment in his career (1). Those of his forensic speeches which are datable all fall within the period 422–411, as Kenneth Dover has shown.[371] If the datable speeches are considered representative of his corpus as a whole, it would appear that Antiphon started publishing right after his first brush with public notoriety – perhaps circulating his work in writing was designed to ameliorate his negative public image. In 411 Antiphon was put to death for his involvement with the coup of the Four-Hundred; we know about this from Thucydides, who composed a famous laudatory sketch of his traits and career (2). As for the didactic treatises *On Truth, On Concord*, and *The Political Man*, nothing in their content sheds any specific light on when they were composed. For want of evidence it would be prudent to date them to the 420's and 410's, just like his other compositions.

Discussions of Antiphon's biography typically place his birth around 480 BCE[372] – a date which, I shall argue now, is too high. Everything we know about the early decades of Antiphon's career derives from an anonymous biography that is preserved in various forms by pseudo-Plutarch, Photius, the *Suda* (partly quoted above), Eunapius (*Lives of the Sophists*, 15), and an anonymous preface attached to the corpus of his speeches (5). The basis for these texts was probably a short essay written by the Augustan-era philologue Caecilius of Caleacte; however, their

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[370] See Pendrick 2002, 1–26, and Gagarin 2002, 37–62, for good summaries of the two positions.

[371] Dover 1950.

[372] So Gagarin 2002, 39, Edwards 1998, 88, and most standard works of reference.

tradition is a fluid one, which makes it hard to decide which variant details are faithful reflections of Caecilius' work and which are original contributions or derive from other sources.[373] For the sake of discussion I shall refer to the original author of this work simply as The Biographer.

Three of these biographies state that Antiphon was alive during the Persian Wars (5.A, B, C). The modern claim that Antiphon was born in 480 BCE rests on the assumption that τὰ Περσικά refers to Xerxes' invasion, and that the verb (γέγονε, pseudo-Plutarch, anonymous; ἤκμαζεν, Photius) must refer to his birth, since the sophist was obviously not in his prime in 480. An examination of the broader context points to a different interpretation of this claim. In order to demonstrate Antiphon's originality as the founder of courtroom speech writing, the Biographer contrasted him with other famous speakers, who are divided into two groups: on the one hand, his contemporaries, and on the other, the earliest logographers, those who first composed texts for performance in court. Antiphon differed from his contemporaries insofar as he wrote legal speeches and they did not; he was distinguished from the other logographers by being older than them. So far, so good. Now according to The Biographer the roster of Antiphon's contemporaries consisted of men like Aristides, Themistocles, Pericles, while the roster of early speechwriters includes Critias, Alcibiades, and Lysias. From a historial point of view the second list is unobjectionable – but the first makes no sense: not only is it problematic to regard Aristides and Pericles as contemporaries, but the presence of the two heroes from the Persian Wars places this group so far back in time that it can no longer count as the generation preceeding Critias etc., as it ought to. It is not hard to see what has happened here. The Biographer was trying to think of famous speechmakers who were earlier than Critias et al., presumably

[373] See Martin 2014 and Pitcher 2005 for good introductions to this complex tradition.

based on speeches he had read in historical works; the names he came up with were Aristides, Themistocles, and Pericles. These became Antiphon's 'contemporaries' by default, since, like him, they were older than Critias et al. And because Aristides and Themistocles were active during the Persian Wars, The Biographer imagined Antiphon as living then as well. That is to say, because The Biographer was really trying to make a point about literary history rather than political history, he unwittingly lumped together the Persian Wars and the Pentakonteia, treating them as a single generation. The Biographer was thus correct to say that Antiphon was older than Critias et al., but acted carelessly in asserting that he was active during the era of the Persian Wars.

The Biographer also coordinated Antiphon' lifetime with Gorgias'. Unfortunately our reports do not agree with each other on the nature of this relationship: either Antiphon was "a little earlier" than Gorgias (Photius), or came "after him" (*Suda*), or was "a little younger" (pseudo-Plutarch), or was "in his prime at the same time" (anonymous preface) (5.A, B, C, D). Given The Biographer's loose sense of chronology, it seems unlikely that he was drawing on precise information about the two men's years of birth. Let's suppose that The Biographer knew as much about fifth-century history as his contemporary and fellow Sicilian (assuming The Biographer *was* Caecilius) Diodorus Siculus. Diodorus' sole notice for Gorgias reports that he came to Athens in 427 BCE and made a strong impression there (*Library of History* 12.53). Antiphon's speechwriting activity began just a few years later, in 422. The Biographer's loose synchronism is most likely a restatement of these facts. If so, this statement does not add to what we know, and is of no help in establishing Antiphon's year of birth.

The only dating clue that is of any real value for dating the start of Antiphon's life is an anecdote from sources unknown ("they say") that when Alcibiades was a boy he studied at a school run by Antiphon's

father Sophilus (5.A). Generally speaking, a teacher's students are likely to be no more than two decades younger or older than the same teacher's son. Accordingly, Antiphon's birth should be placed close to Alcibiades', i.e. around 450 BCE. Since The Biographer thought Antiphon was older than Alcibiades (5.A), we might push the former's year of birth back into the 460's. The resulting timeline fits well with his attested activities: Antiphon began consulting and publishing when he was in his 40's, and was in his 50's when he took part in the coup.

Estimated objective chronology for Antiphon:

460's BCE:	born
420's:	teaches and consults for hire
around 420:	begins writing and publishing speeches
410's:	written work completed
411:	put to death

PHILOLAUS OF TARENTUM

1. Plato, *Phaedo* 61d/e — 4th century BCE

"'What's that, Cebes? Didn't you and Simmias hear something about this while you were in Philolaus' company?' 'Nothing specific, Socrates.' 'Well I can speak about this, from hearsay. I don't begrudge telling you what I was lucky enough to hear.'… 'What you're now asking I once heard about from Philolaus, when he was staying with us, and once heard from others, that one shouldn't do it [sc. commit suicide]; but I never heard anyone say anything specific about it.'"

2. Diodorus of Aspendus — 4th century
via Iamblichus, *The Pythagorean Life* 266

"[Diodorus of Aspendus] wrote that 'around Heracleia, Cleinias and Philolaus; at Metapontum, Theoridas and Eurytus, and Archytas at Tarentum' were devotees of these men."[374]

3. Hermodorus of Syracuse 4th century
via Diogenes Laertius, *Lives* 3.6
"As Hermodorus says, once Plato reached age 28, he left for Megara to visit Euclides in the company of some other Socratics. Next he went off to Cyrene to visit Theodorus the mathematician, and from there he went to Italy to visit the Pythagoreans Philolaus and Eurytus."
Plato's 28th year: ca. 397 BCE

4. Apollodorus of Cyzicus 4th century
via Diogenes Laertius, *Lives* 9.38
"Also, Apollodorus of Cyzicus says that Democritus met with Philolaus."

5. Aristoxenus of Tarentum 4th century
via Diogenes Laertius, *Lives* 8.46
"The last of the Pythagoreans, those whom Aristoxenus knew, were Xenophilus of Thracian Chalcidice, Phanton of Phlius, and Echecrates, Diocles, and Polymnastus of Phlius. They were students of Philolaus and Eurytus, who were both from Tarentum."

6. Menon(?) 4th century
via *Anonymous Londoniensis* 18.8
"Philolaus of Croton says that our bodies are constructed out of warmth…"

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[374] The provenance of this text and its implications will be discussed in detail in the next volume of this series.

7. Cicero, *The Orator* 3.139 1st century
"Did Philolaus teach Archytas of Tarentum… any other skills?"

8. Plutarch, *On Socrates' Daemon* 583a 2nd century CE
"When the Pythagoreans were overcome by internal strife their societies in various cities were forced to leave. While those who stuck together in Metapontum were meeting in a house, the followers of Cylon surrounded it with a bonfire, killing everyone in one place except for Philolaus and Lysis, who were young and saved from the blaze by their strength and nimbleness. Philolaus fled from there to the Lucanians, to visit the other Friends who had previously gathered there and overcome Cylon's men."

9. Diogenes Laertius, *Lives* 8.84/5 3rd century
"Plato wrote to Dion that he should buy the Pythagorean books from [Philolaus]… [Philolaus] wrote one book; Hermippus has some writer saying that Plato visited Dionysius in Sicily in order to buy it from the relatives of Philolaus for forty Alexandrine minas of silver. Others say that Plato received them after begging Dionysius to release a young student of Philolaus from prison… Demetrius in his *Men of the Same Name* says that [Philolaus] was the first to publish Pythagorean books."
Dionysius I of Syracuse: 405 to 367 BCE Dionysius II: 367 to 357

10. Olympiodorus, scholia to Plato's *Phaedo* 8.18-9.5 6th century
"A certain Gylon (sic) came to them and after suffering this fate [sc. of being found unworthy of philosophy] started a fire under the school which burned up everyone except for two men, Philolaus and Hipparchus. Philolaus went to Thebes because he needed to pour libations to his teacher Lysis, who had died and was buried there."

Plato's *Phaedo* is the oldest surviving text to mention Philolaus by name (1).[375] From it we learn that Philolaus was living in Thebes a few years before Socrates' death in 399 BCE and was visited there by two men, Simmias and Cebes, who were young students of Socrates. Apparently Philolaus was old enough to be a teacher around the year 410. A few decades later Plato's student Hermodorus described his master visiting Philolaus during his first visit to Italy, around 385 (3; cf. 9). Apollodorus of Cyzicus reported that Democritus spent some time with Philolaus (4). Collectively these bits of information allow us to infer that Philolaus was a contemporary of Socrates and outlived him by at least 15 years. Unless he lived to be older than 80, he was probably born in the early 460's.

Other pieces of testimony confirm this picture without adding much to it. The report by Aristoxenus (born ca. 360) that his own teacher Xenophilus was a student of Philolaus seems valid but is not actionable because Xenophilus lived to be nearly 100 (5). If Archytas studied with Philolaus then the latter must have been teaching after ca. 405 BCE (7). The inclusion of Philolaus in a catalogue of medical authors whose floruits are no later than 440 confirms a *terminus post quem* for his birth of around 480 (6).[376]

An important question about Philolaus' biography is whether he was one of the survivors of the assault on the Pythagorean communities in southern Italy (8, 10). If the attacks in question took place just before 435 BCE, as I will argue in the next volume in this series, and if Philolaus was already a member of the society when he was 20 years old, then at least from a chronological point of view nothing would preclude his presence. It is encouraging that one report speaks of his "youth" as a factor in his survival (8). We can also be confident that Philolaus did go into exile, since otherwise it is hard to understand what necessity would

[375] The best recent discussion of Philolaus' chronology is Huffman 1993, 1–7.
[376] See page 302.

have compelled a native of Magna Graecia to settle in Thebes during the time of the Peloponnesian War (where, tellingly, he pondered the ethics of suicide). The philosopher returned home to Italy in his last years, teaching at Heracleia in Lucania (2). The story of his escape is only preserved in Plutarch and Olympiodorus, late sources, but is at least consistent with the rest of the evidence we have for his life.

Estimated objective dates:

460's BCE:	born
early 430's:	escaped assault on Pythagoreans in southern Italy
420's, 410's:	teaching in Thebes
by 390:	back in southern Italy, at Heracleia

EURYTUS OF TARENTUM

1. Archytas of Tarentum — 4th century BCE
via Theophrastus, *Metaphysics*, 6a18
"For what Archytas once said Eurytus did when he arranged pebbles is characteristic of a perfectly smart man; for he would say 'this is the number of a man, this the number of a horse, and this the number of some other random thing.'"

2. Diodorus of Aspendus — 4th century
via Iamblichus, *The Pythagorean Life* 266
"[Diodorus of Aspendus] wrote that 'around Heracleia, Cleinias and Philolaus; at Metapontum, Theoridas and Eurytus, and Archytas at Tarentum' were devotees of these men."[377]

[377] The provenance of this text and its implications will be discussed in detail in the next volume of this series.

3. Hermodorus of Syracuse 4th century
via Diogenes Laertius, *Lives* 3.6
"As Hermodorus says, once he reached age 28, Plato left for Megara to visit Euclides in the company of some other Socratics. Next he went off to Cyrene to visit Theodorus the mathematician, and from there went to Italy to visit the Pythagoreans Philolaus and Eurytus."
Plato's 28th year: 400/399 BCE.

4. Aristoxenus of Tarentum 4th century
via Diogenes Laertius, *Lives* 8.46
"The last of the Pythagoreans, those whom Aristoxenus knew, were Xenophilus of Thracian Chalcidice, Phanton of Phlius, and Echecrates, Diocles, and Polymnastus of Phlius. They were students of Philolaus and Eurytus, who were both from Tarentum."

5. Iamblichus, *The Pythagorean Life* 148 4th century CE
"Eurytus of Croton was a student of Philolaus. When a shepherd reported to him that at midday he had heard the voice of Philolaus coming from his tomb, and that even though he had been dead many years, it seemed to be singing, he replied, 'My god! What key was it in?'"

Three authorities who date to the fourth-century BCE, Diodorus, Hermodorus, and Aristoxenus, mention Eurytus and Philolaus in the same breath, with the implication that they were peers (2, 3, 4); Archytas' recollection of his pebble-figure constructions suggests that Eurytus was his senior (1). Iamblichus, in an anecdote describing a posthumous miracle, indicates that Eurytus outlived Philolaus (5). The two men should thus be regarded as coevals.

460's BCE: born at Tarentum
390's: in southern Italy, teaching at Metapontum

THEODORUS OF CYRENE

1. Plato, *Theaetetus* 161b, 162a 4th century BCE
"Socrates: You know then, Theodorus, what I admire in your companion Protagoras… Theodorus: He is my friend, just as you say, Socrates."

2. Hermodorus of Syracuse 4th century
via Diogenes Laertius, *Lives* 3.6
"As Hermodorus says, once he reached age 28, Plato left for Megara to visit Euclides in the company of some other Socratics. Next he went off to Cyrene to visit Theodorus the mathematician, and from there went to Italy to visit the Pythagoreans Philolaus and Eurytus."

3. Eudemus of Rhodes, *History of Geometry* 4th century
via Proclus, *On the 1st Book of Euclid's Elements* 66.4
"After [Anaxagoras and Oenopides], Hippocrates of Chios and Theodorus of Cyrene stood out in the field of geometry."

Plato (1) describes Theodorus as a peer of both Socrates (469 to 399 BCE) and Protagoras (ca. 480 to 410); he comes after Oenopides and Anaxagoras in Eudemus' chronologically ordered roll call of geometers (3). This would suggest that Theodorus' year of birth fell within a decade or two of 460, and that his productive years began not much earlier than 430. In the year 400, while visiting Athens, he had just recently arrived from Cyrene, since he describes himself as familiar with the most promising of the young men there (*Theaetetus* 143d). This

visit can best be explained as a reaction to a civil war which broke out in Cyrene in the year 402/1 and caused its most influential citizens to flee (Diodorus Siculus, *Library of History* 14.34). The war was brief, and Theodorus must have returned to his home city shortly thereafter, since Plato had to travel there when he visited sometime in the 390's (2). The *Theaetetus* (147d) implies that Theodorus' work on irrationals was completed by 400, and his geometrical career should extend at least a decade earlier.[378]

Estimated objective chronology for Theodorus:

ca. 460's BCE:	born
420's, 410's, 400's:	geometrical studies
400:	dramatic date of *Theaetetus* discussion
390's:	visited by Plato in Cyrene

HIPPOCRATES OF CHIOS

1. Aristotle, *Meteorology* 1.6, 342b28 — 4th century

"Anaxagoras and Democritus say that comets are the fused appearance of 'wandering stars'… Among the Italians, some of the men who are called Pythagoreans say that [a comet] is one of the wandering stars… Hippocrates of Chios and his student Aeschylus have made similar claims…"

2. Eudemus of Rhodes, *History of Geometry* — 4th century
via Proclus, *On the 1st Book of Euclid's Elements* 66.4

[378] Cf. Knorr 1975, 37, who places Theodorus' geometrical career between 410 and 390 BCE.

"After [Anaxagoras and Oenopides], Hippocrates of Chios and Theodorus of Cyrene stood out in the field of geometry."

3. John Philoponus, *On Aristotle's Physics* 1.2, 185a16 6th century
"There was a certain merchant, Hippocrates of Chios, who, after encountering a pirate ship and losing everything, went to Athens to file charges against the pirates. Since the filing required him to stay at Athens for a long time, he visited the philosophers, and got so into the geometrical habit that he attempted to figure out how to square the circle."
Cf. Aristotle, *Eudemian Ethics* 8.14, 1247a

Eudemus, the earliest scholar to explicitly comment on Hippocrates' chronology, makes him a contemporary of Theodorus (4). An anecdote preserved by Philoponus (5) about the origin of his interest in geometry is set at a time when Chios was still part of the Athenian empire, so prior to the island's revolt in 412 BCE. Aristotle includes him in a review of cometary theories; that he put him last, after Democritus and unnamed Pythagoreans (3), may indicate that he came later than both, or at any rate was not much older than them. The very fact that Hippocrates wrote about comets offers another potential clue to his dating. Bright, naked-eye comets are relatively rare phenomena; Aristotle had access to reports of four such events, which he dates to 467, 426, 373/2, and 341/0.[379] His description of the comet of 426 falls in the middle of his critique of Hippocrates' theory (*Meteorology* 1.6, 343b2):

> "When Eucles son of Molon was archon at Athens, there was a comet in the north in the month of Gamelion, when the sun was near its

[379] *Meteorology* 1.7, 344b32 (467); 1.6, 343b4 (426); 1.6, 343b2, 1.7, 344b34 (373/2); 1.7, 345a2 (341/0).

> winter solstice point; yet such a large reflection is one of the things they themselves [sc. Hippocrates and his student Aeschylus] speak of as an impossibility."

Hippocrates was living in Athens at this time and had an interest in comets. It is possible and even likely that Aristotle is drawing here on Hippocrates' own account of the comet.[380] If this is right, a dating for his work in the 420's or 410's is indicated, somewhat later than previous scholars have preferred to place him.[381]

Estimated objective chronology for Hippocrates:

ca. 460's BCE:	born
420's, 410's:	studies and publication of treatise

METON OF ATHENS

1. Aristophanes, *Birds* 997–1001 — 5th century BCE

"Who am I? Meton,
whom Greece knows, and Colonus." "Tell me,

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[380] It might be objected that Hippocrates would be unlikely to provide Aristotle with the data needed to refute his explanation; but of course we don't know how coherent Hippocrates' account was, or how charitable Aristotle was in reporting it. Since bright comets tend to fade quite rapidly after reaching peak brightness, Hippocrates may have used the impossibility of a long-distance reflection (from the sun in the south to the comet in the north) to explain why the comet vanished once it reached the northern region of the sky; Aristotle's objection would then be that it never should have appeared in the northern sky to begin with. For a detailed reconstruction of Hippocrates' theory, see Wilson 2008.

[381] Netz 2004, 244/5, following Heath, prefers the 450's to 430's BCE; but cf. Knorr 1975, 40, who gives the range 420 to 390.

these things you have, what are they?" "Rulers for air.
For, behold, the air in its entirety is shaped
like a cookstove, more or less."
414 BCE

2. Philochorus of Athens 4th century
via scholia on Aristophanes *Birds*, 997
"Callistratus says that at Colonus there is a certain astronomical dedication of his. Euphronius says that he was from the deme of Colonus, but this is false. Philochorus says he was from Leuconoe. The statement of Callistratus is clear, for probably there was something at Colonus. But Philochorus says that he put up nothing at Colonus, but in the archonship of Apseudes who was before Pythodorus he put up a *heliotropion* in what is now the assembly, by the wall in the Pnyx."
Archonship of Apseudes: 433/2 BCE

3. Diodorus Siculus, *Library of History* 12.36.2 1st century
"At Athens, Meton the son of Pausanias, who had acquired a reputation in astronomy, made public his so-called 19-year cycle, starting it on the thirteenth of the Athenian month Skirophorion. In the aforementioned number of years the stars return to their positions and renew their cycle, as if over a kind of long year; thus some people also call this 'Meton's year'."
433/2 BCE

4. Plutarch, *Life of Nicias* 13.5 2nd century CE
"Whether because he feared these omens or was nervous for the army based on secular considerations, the astronomer Meton, who had been appointed to a position of leadership, pretended to set his house on fire as if he were insane. Some say he did not feign madness but one night

set his house on fire and proceeded to the agora in humble fashion, begging his fellow citizens to release his son from service, since, on top of this disaster, his son was about to sail to Sicily as a trireme commander."
415 BCE

5. Ptolemy, *Almagest* 205.15, 19 2nd century
"... the summer solstice observed by people like Meton and Euctemon... It is recorded as having taken place when Apseudes was archon at Athens, Phamenouth 21 according to the Egyptians, in the early part of the day."

6. Aelian, *Miscellaneous History* 13.12 3rd century
"The Athenians were on the verge of sailing to Sicily and the astronomer Meton was one of those conscipted. Because he understood full well the misfortunes to come, he kept a fearful watch for the fleet and was eager to procure his own exit. When this went nowhere, he acted mad; among the many things he did with the aim of making the appearance of his malady credible was to set his own house on fire, which lay next to the Stoa Poikile. After this the archons let him off."
415 BCE

Although no direct information about Meton's birth and death survives, Meton won recognition at Athens in a very public way on three datable occasions. The first was his observation of the solstice and dedication of an astronomical stele in the archonship of Apseudes, 433/2 BCE (2, 3, 5). The second was the burning of his house in 415, on the eve of the Sicilian expedition; at this time he was old enough to have a son who was a trireme commander, hence probably close to sixty (4, 6). The third and final was his appearance as a character in Aristophanes' *Birds*,

which was first performed in 414 (1). He was thus coeval with Theodorus and Socrates.

Estimated objective chronology:

470's or 460's BCE:	born
433/2:	solstice observation and erection of stelae
415:	protests Sicilian expedition, house fire
414:	parodied in Aristophanes' *Birds*

EUCTEMON OF ATHENS

1. Thucydides, *History of the Peloponnesian War* 8.30.1 5th century BCE

"In the same winter the Athenians at Samos were joined by thirty-five other ships that had come from home along with the admirals Charminus, Strombichides, and Euctemon; they assembled the ships from Chios together with the rest and drew lots, since they wanted to set out against Miletus with a fleet, and send a fleet with infantry to Chios."

412/1 BCE

2. Geminus, *Introduction to Astronomy* 8.50 1st century

"Astronomers like Euctemon, Philippus, and Callippus put together another cycle, one nineteen-years long."

3. Ptolemy, *Visibilities* 67.6 2nd century CE

"Meton and Euctemon [sc. made their observations] from Athens, the Cyclades, Macedonia, and Thrace."

4. Avienus, *The Coastline of the Sea* 47/8, 338, 350 4th century
"Euctemon, a citizen of the city of Athens… Euctemon, resident of the city of Amphipolis… Euctemon of Athens"

Euctemon is frequently paired by our sources with Meton as co-discoverer of the 19-year cycle. However, there are significant differences in the way the two men are portrayed. Euctemon is never represented as a celebrity like Meton; no anecdotes about his life survive. Yet Euctemon's contributions to astronomy seem to have been more systematic, or at least more fully elaborated. From Euctemons' calendar of star phases 70 different entries are preserved; from Meton's, only eight.[382] Geminus, in his account of the 19-year cycle, identifies Euctemon as its author while omitting Meton's name altogether (2). One way to explain this divergence is to hypothesize that Euctemon authored a book in which he described Meton's astronomical contributions along with his own, and that this work was the source later astronomers relied on for their knowledge of both men.

Although identified as an Athenian, Euctemon is described by Avienus as hailing from the Athenian colony of Amphipolis, which was founded in 437 BCE (4). We might harbor doubts whether Avienus' Euctemon, who wrote on the maritime geography of the straits of Gibraltar, was the same as the astronomer, but Ptolemy's claim that Meton and Euctemon made observations from Macedonia, where Amphipolis was located (3), as well as Athens, lends support to the idea that the geographer and the astronomer were the same person. Thucydides identifies a certain Euctemon as one of three commanders of a contingent of ships which sailed from Athens to Samos in the winter of 412/1 and engaged in operations around Chios (1). An Athenian with navigational expertise

[382] These counts include the entries in Geminus' parapegma and Ptolemy's *Visibilities*, with duplicate entries counted as one.

could hardly have avoided naval service during the Peloponnesian War, so we may tentatively identify the two – note that three entries from his star-phase calendar predict, not just storms and strong winds, but storms at sea.[383] Finally, in 408/7 a certain Euctemon was elected eponymous archon at Athens. During his archonship the Athenians made the decision to abandon the running cycle of 366 days and replace it with a system designed to ensure that the council year and the archon's year began on the same day; this reform first took effect in 407/6.[384] Since the archon was technically in charge of the calendar, it is reasonable to think that an associate of Meton expert in calendrical science would be the one who oversaw the implementation of this change. We thus have two possible dates for Euctemon's service to Athens, and can assume that his astronomical treatise was composed around this time.

Estimated objective chronology

410's BCE:	studied with Meton
412:	service as admiral (?)
407:	elected archon

ECPHANTUS OF CROTON

1. Polyaenus, *Stratagems* 1.39.2 2nd century CE

"When the Athenians were encamped near the Olympeum, Nicias ordered them to go out at night into the flat land in front of the camp and plant caltrops there. The next day, when Ecphantus the commander

[383] Cf. Geminus, *Introduction to the Phaenomena*, Cancer 28, Libra 30, Capricorn 14,

[384] See Aristotle, *Constitution of the Athenians* 43.2, with Merritt 1930, 238, Pritchett 1970, 34.

of the Syracusan cavalry led his horsemen out, they beat a disgraceful retreat as the caltrops got stuck in the horses' hooves."
413 BCE

2. Eusebius, *Preparation for the Gospel* 15.58.3 4th century
"Heraclides of Ponticus and Ecphantus the Pythagorean put the earth in motion – not through space, but rotationally, like a wheel turning on an axis, going from west to east around a center which is part of itself."

3. Stobaeus, *Selections* 1.10.14, 16 5th century
"Leucippus of Miletus said that the basic principles and elements are plenum and void… Democritus, solids and void… Ecphantus of Syracuse, one of the Pythagoreans, said that the [basic principles] of all things are indivisible bodies and void. He was the first to teach that the Pythagorean monads are corporeal."

The Pythagorean Ecphantus is portrayed as teaching a special form of atomism in which the particles are not moved by their own weight or by collisions but are instead steered by a divine power (3). Since he is specifically called a Pythagorean (2, 3), he is likely the same as the Ecphantus of Croton mentioned by Aristoxenus, the conflicting demonyms an artifact of his relocation from one city to the other.[385] We can regard him as a bit younger than Leucippus and Democritus because he is nowhere mentioned as one of the founders of atomism. His hypothesis of a rotating earth appears to be a revision of the Philolaus'

[385] There are numerous cases of Pythagoreans with multiple demonyms that can be explained in terms of their relocation; I will discuss these at length in the next volume in this series.

counter-earth theory (2).[386] That Theophrastus discussed Ecphantus' theories in his doxographical compilation appears likely, in view of the attention they receive in the Aëtian tradition; Ecphantus should thus be prior to Plato, the youngest thinker Theophrastus treated. Because his theories look like a simpler version of the sophisticated geometric atomism of the *Timaeus*, they ought to have become known no later than the 360's BCE. Ecphantus was one of the first Pythagoreans in the fourth-century to publish a treatise, but not *the* first – that honor was generally given to Philolaus; accordingly his work should postdate Philolaus', which would place its publication after ca. 385. Together these clues suggest that his writings came out between the late 380's and the early 360's. If he was a member of the Pythagorean collective, he was probably born before ca. 450. A Syracusan cavalry commander named Ecphantus who was in the middle of his life around 413 might well be the same person as our philosopher (1).[387]

Wilbur Knorr argued that Ecphantus' theory would have appeared untenable after ca. 400 BCE, when Greek savants were coming to grips with the discovery of incommensurability and its implications; but Knorr's argument overlooks the fact that geometrical incommensurability and physical indivisibility are distinct problems.[388]

Estimated objective dates:

450's BCE:	born
ca. 385 to 365:	publishes his treatise

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[386] So Guthrie 1962, 327, and Huffman 1993, 8; according to Diogenes Laertius, (*Lives* 8.85), Philolaus was the first to ascribe a circular motion to the earth.
[387] Zhmud 2012, 130n115, thinks the Syracusan cavalryman was a relative.
[388] Knorr 1975, 43/4.

METRODORUS OF CHIOS

1. Theophrastus 4th century BCE
via Simplicius, *On Aristotle's Physics* 28.27
"Metrodorus of Chios came up with basic principles that are almost the same as those of Democritus, positing the full and the void as primary causes."

2. Clement, *Stromata* 1.64.4 3rd century CE
"Protagoras of Abdera and Metrodorus of Chios were Democritus' students; Diogenes of Smyrna was Metrodorus', Anaxarchus was Diogenes', Pyrrho was Anaxarchus', and Nausiphanes was Pyrrho's; and some say Epicurus was Pyrrho's."

3. Diogenes Laertius, *Lives* 9.58 3rd century
"Anaxarchus of Abdera. He heard Diogenes of Smyrna teach, and he in turn heard Metrodorus of Chios, the one who said he didn't even know that he knew nothing. Metrodorus heard Nessas of Chios teach, or Democritus, as some say. Anaxarchus accompanied Alexander the Great and was in his prime in the 110th Olympiad."
110th Olympiad: 340–336 BCE

4. Solinus, *Wonders of the World* 1.108 3rd century
"Memory can also be produced through technique, it is clear. An example is the philosopher Metrodorus, who lived in the time of Diogenes the Cynic and by constant practice reached the point that he could retain statements made at the same time by multiple persons word-for-word, not just their ideas."

5. Eusebius, *Preparation for the Gospel* 14.19.9 4th century

"People have said that Metrodorus heard Democritus teach."

6. The *Suda*, 'Purrhon' (*pi*-3238) 10th century
"The philosopher Pyrrho of Elis, son of Pleistarchus, who lived in the reign of Philip of Macedon, during the 111th Olympiad and what followed. Originally he was a painter, but later on felt the urge for philosophy and heard Bryson the student of Cleinomachus teach; next, Alexander (sic) the student of Metrodorus of Chios, whose teacher was Metrodorus of Abdera (sic)."[389]

Epistemologist, mythographer, and natural philosopher, Metrodorus of Chios was one of the more eclectic figures in the canon of pre-Aristotelian thinkers.[390] The earliest clue to Metrodorus' chronology consists in the fact that Theophrastus drew up a précis of his physical doctrines (1). Since Plato was the youngest of those whose teachings he summarized (Simplicius, *On Aristotle's Physics* 26.7), we may infer that he considered Metrodorus Plato' senior, i.e. either he was born before ca. 425 BCE, or was active before the foundation of the Academy ca. 385.

A second clue to his chronology comes from a genealogy of atomistic/skeptical philosophers that appears to go back to a Hellenistic source, and lays out a succession Democritus-Metrodorus-Diogenes of Smyrna-Anaxarchus-Pyrrho (2, 3, 5, 6). Being younger than Democritus means Metrodorus was born sometime after 460 BCE. A *terminus post quem* for his life can his estimated by working backwards from Anaxarchus. Anaxarchus was in his prime in the 330's (3); Diogenes of

[389] The names in question should of course be 'Anaxarchus' and 'Democritus'.
[390] Fowler 2013 on Metrodorus' chronology is to the point: "Metrodoros of Chios was a pupil of Demokritos…; despite some small discrepancies, the list of *diadochoi* is consistent and dates Metrodoros securely in the early fourth century" (705).

Smyrna's prime should accordingly fall between the 380's and the 340's, say, and Metrodorus' still earlier, between, say, 410, and 350. We thus have 450 to 425 as a range for his year of birth, and a floruit near or shortly after the turn of the century.

A third clue supports this dating, even if it fails to make it more precise. Solinus briefly describes the remarkable memory feats of a philosopher named Metrodorus who lived during the time of Diogenes the Cynic (4). The statement is confused, since the reference is clearly to Metrodorus of Skepsis, who was famous for his mnemotechnical system and lived during the late 2nd century BCE. Nevertheless, one might conjecture that behind this mistaken synchronism stood a valid one that connected the Chian Metrodorus to the famous Cynic, who was born around 410. Metrodorus was Diogenes' older contemporary.

Estimated objective chronology

440's or 430's BCE:	born
390's to 370's:	active

ARCHYTAS OF TARENTUM

1. Pseudo-Demosthenes, *Erotic Oration* 46 4th century BCE

"And in case we shouldn't waste our time talking about older examples when we can use more modern illustrations, there is this: Timotheus, you will find, earned the greatest fame and highest honors not for what he did when he was young but for what he accomplished after spending time with Isocrates. And this: when he was appointed its guardian, Archytas managed the city of Tarentum so effectively and humanely that word of him spread to all mankind; and though he was initially scoffed at, he made enormous progress after spending time with Plato."

2. Aristoxenus of Tarentum, *Life of Archytas* 4th century
via Athenaeus, *The Learned Banqueters* 545a
"Aristoxenus the music scholar in his *Life of Archytas* says that ambassadors came to the city of the Tarentines from the court of Dionysius the Younger, including Polyarchus nicknamed the Gourmand, a man who was devoted to bodily pleasures in practice as well as in the theory. After he got to know Archytas, since philosophy was not entirely strange to him, he went to the official precinct and walked around with Archytas and his followers listening to him speak."
Dionysius the Younger: 367 to 357, 346 to 344 BCE

3. Eudemus of Rhodes 4th century
via Proclus, *On the 1st Book of Euclid's Elements* 66.14, 18, 67.2
"During this time [sc. when Plato was active] Leodamas of Thasus, Archytas of Tarentum, and Theaetetus of Athens were also alive… Younger than Leodamas were Neoclides and his student Leon, who added many things to the works of their predecessors… Eudoxus of Cnidus was a little younger than Leon and an associate of people like Plato."

4. Plato (?), *Letter Seven*, 338c 4th century(?)
"Apparently after this Archytas visited Dionysius – for before my departure I had created a guest-friendship between Archytas and the men at Tarentum and Dionysius, and only then sailed away…"

5. Callimachus of Cyrene, *Tables* 3rd century
via Diogenes Laertius, *Lives* 8.86
"[Eudoxus] learned geometry from Archytas, and medicine from Philistion of Sicily, as Callimachus says in his *Tables*."

6. Philodemus, *Index of the Academics*, *Papyri Herculanenses* 1021, 5.32–6.12 1st century
"Plato's students included… Archytas of Tarentum."

7. Cicero, *The Orator* 3.139 1st century
"Did Philolaus teach Archytas of Tarentum… any other skills?"

8. Strabo, *Geography* 6.3.4 1st century CE
"At one point the Tarantines became exceedingly strong under a democratic government; for they possessed the largest fleet of that age and could field 30,000 infantry, 3,000 cavalry, and 1,000 cavalry commanders. They also welcomed Pythagorean philosophy, especially Archytas, who presided over the city for a long time. Later, luxury got the upper hand as a result of their good fortune, with the result that they celebrated more public festivals each year than there were days; henceforth their government became worse too. One token of bad government was their employment of foreigners as generals…"

9. Diogenes Laertius, *Lives* 8.79 3rd century
"[Archytas] was admired by the masses for his various virtues and served as general for his fellow citizens seven times, while no other man served more than one year due to a law which prevented it."

In dating Archytas the conclusion drawn by Carl Huffman, the most recent editor of his fragments, that "the best estimate based on the remaining evidence is that Archytas was born sometime between 435 and 410 and died sometime between 360 and 350," is securely founded, though I would argue that the philosopher's birth year can be more

narrowly specified.[391] The *Erotic Oration* ascribed to Demosthenes places Archytas' political activity after his personal acquaintance with Plato (sometime after 385 BCE) and at the same time or just after that of the Athenian general Timotheus, whose career ran from 378 until 355 (1) – so, no earlier than 375. Aristoxenus recounted an anecdote in which Archytas was general at Tarentum during the initial reign of Dionysius II at Syracuse (2), 367 to 357. Strabo suggests that Archytas' time as ruler preceded the hiring of mercenary generals at Tarentum, a practice that began ca. 340 (8). In combination the first and last testimonia show that Archytas' generalships should fall between the 370's and the 340's. Aristoxenus' anecdote indicates that his first election must have taken place before 357 (9). If he was between 40 and 60 years old at the time of that election, then his year of birth should fall in the 430's at the earliest, and around 396 at the latest.

Additional dating clues can be elicited from his philosophical and scientific activity. The suggestion in the *Erotic Discourse* and other sources that Archytas was Plato's junior limits the era for his birth to the years after 424 BCE (1, 6). Since Archytas was in turn presented as Eudoxus' senior (5) he must have been born before 400. Eudemus' history of mathematics offers another valuable clue, pointing to a substantial age gap between Archytas and Eudoxus; specifically it states that Eudoxus's work postdated the geometer Leon's, that Leon's postdated that of Leodamas, and that Leodamas was coeval with Archytas (3). This suggests that the difference between the ages of Eudoxus and Archytas was significant, perhaps as much as 20 years, which would place his birth around 420. Archytas was also said to be a contemporary of Theaetetus, who was a "lad" just before Socrates' death (Plato, *Theaetetus* 142c) and thus born around 415 (3). Archytas' year of birth

[391] Huffman 2005, 5.

can thus be placed in 420, give or take a few years. The intimation of the Platonic(?) letter that Archytas was still alive in 360 is the last piece of datable evidence for his life (4).

Estimated objective dates for Archytas

around 420 BCE:	born
after 400:	studies with Philolaus and Plato
between 375 to 345:	elected general of Tarentum six times

HERACLIDES OF PONTUS

1. Heraclides, *Piety* 4th century BCE
via Strabo, *Geography* 8.7.2
"Heraclides says that this disaster (sc. the tsunami at Helice) happened in his own time."
The tsunami: 373 BCE

2. Heraclides, *The Soul* 4th century
via Plutarch, *Camillus* 22.2
"It would appear that a certain vague rumor of this disaster and Rome's capture immediately reached Greece, since Heraclides of Pontus, who stood at no great remove from that time, says in his work *The Soul* that a story spread from the West to the effect that an army of Hyperboreans came from abroad and captured a Greek city called Rome."
The capture of Rome: 387 BCE

3. Aristoxenus 4th century
via Diogenes Laetius, *Lives* 5.92

"Aristoxenus the music scholar says [Heraclides] composed tragedies and labelled them as works of Thespis."

4. Chamaeleon of Heraclea 4th century
via Diogenes Laertius, *Lives* 5.92
"Chamaeleon says that [Heraclides] stole from his work when writing his *Essays on Homer and Hesiod*."

5. Sotion, *Successions* 2nd century
via Diogenes Laertius, *Lives* 5.86
"At Athens [Heraclides] first attached himself to Speusippus, but he also heard the Pythagoreans teach and had been a fan of Plato's work, and later he heard Aristotle teach, as Sotion says in his *Successions*."

6. Philodemus, *List of Academic Philosophers* Col. 6.41–44, 7.1–10
1st century
"The young members (sc. of the Academy) voted on who would be their leader, chosing Xenocrates of Chalcedon – Aristotle was away in Macedonia, and Menedemus of Pyrrha and Heraclides of Heraclea lost by just a few votes. So Heraclides sailed away to Pontus, while Menedemus formed a second peripatetic school."

7. Diogenes Laertius, *Lives* 5.92/3 3rd century CE
"Dionysius the Defector, or the Spark, as some call him, wrote a play, *Parthenopaeus*, which he attributed to Sophocles. [Heraclides], believing that it was one of the tragedian's writings, cited it as evidence for Sophocles. When Dionysius noticed this he revealed to him what he had done; and when the other man denied and disbelieved it, he told him to look at the acrostic which it contained: 'Pankalos'. (This was Dionysius' lover.) When he continued to disbelieve him and claimed that this could

have happened by chance, Dionysius once again told him what to do: 'You will also find these lines – 'An old ape does not get caught in a trap.' 'No he does get caught, but it takes time.' – and in addition, 'Heraclides doesn't understand literature and doesn't feel ashamed.'"

8. The *Suda*, 'Herakleides' (*eta*-461) 10th century
"[Heraclides] was an acquaintance of Plato; Plato left him behind to oversee his school when he traveled to Sicily."

A longstanding scholarly tradition that can be traced back to Diogenes Laertius treated Heraclides as a member of Aristotle's school – a classification that would make him ineligible for inclusion in a study of pre-Aristotelian thinkers.[392] Some scholars have preferred to see Speuippus as his primary mentor.[393] Most recently Hans Gottschalk and Jorgen Mejer have stressed his links to Plato and posited that he was, at least in chronological terms, Aristotle's peer.[394] My aim here is to review the relevant evidence for his dating, proceeding from the earliest sources to the latest. Although I take no position on the vexed question of Heraclides' philosophical affiliation, I agree that Heraclides was nearly the same age as Aristotle, if not a few years older.

Two statements from Heraclides' own writings allow us to fix his era broadly. The most important of these is his claim that the tsunami which swamped Helice and Buris took place during his own lifetime (1). If this event, securely datable to 373 BCE, belongs to the first decades of his life, his date of birth can be placed somewhere within the range 410 to

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[392] Diogenes' biography of Heraclides comes at the end of book five, which is devoted to Aristotle and the Peripatetics. Wehrli 1953 treats Heraclides as a student of Aristotle, but not a proper member of his school.
[393] Voss 1896, 9–13.
[394] Gottshalk 1998, 3–6; cf. Mejer 2009.

373. His perception of Brennus' sack of Rome as a recent event (387/6) is consistent with this range (2).

Two students of Aristotle, Aristoxenus and Chamaeleon, mentioned Heraclides in their writings (3, 4). The fact that the latter accused him of plagiarism suggests that Heraclides was still writing when Chamaeleon was in the middle of his career, say, in the last two decades of the fourth-century. This conclusion is confirmed by an anecdote about Heraclides' encounter with Dionysius, which, given its rich detail, seems to go back to a reliable and early Hellenistic source (7). After studying with Heraclides, Dionysius joined the circle of Menedemus, and later associated with Zeno the Stoic, who began teaching shortly before 300 BCE (Diogenes Laertius, *Lives* 7.166). For this to be the case Dionysius could not have been born much earlier than the 340's; the incident with Heraclides probably dates to his 30's or 40's, since he had a boy lover at the time. Heraclides, who is described as an 'old ape', must have been fairly old. This tells us that he was still alive in the 310's; and since he is nowhere characterized as exceptionally long lived, the earliest date for birth is in the 390's.

A passage from the *Index Academicorum* probably deriving from a contemporary account refers to Heraclides' loss in the election to succede Speusippus as head of the Academy (6). This election took place in 339 BCE; in order to receive serious consideration Heraclides must have been fairly old; a clue, then, that he was born before 380.

Diogenes Laertius' paraphrase of Sotion has some important things to say about Heraclides' chronology and philosophical allegiances, but has posed problems of interpretation due its odd grammar (5): the piling up of conjunctions, the four distinct yet synonymous verbs, and the inclusion of a pluperfect verb among a set of aorists. Eduard Schwartz argued that Diogenes' middle clause came from a different source, so that the mention of Heraclides' studies with Speusippus and Aristotle

derived from Sotion, while the lost authority was responsible for the report about Plato and the Pythagoreans.[395] This interpretation cannot be ruled out, but it is Diogenes' habit to add a phrase like 'but some say' when merging sources within a single sentence.[396] The awkwardness can I think be more easily explained by recognizing that the statement is focalized on the years after Plato's death, when Speusippus was head of the Academy (348/7 to 339 BCE). At that point Heraclides attached himself to Speusippus, developing such a good relationship with him and the school that he nearly became his successor. The middle clause looks back in time to a period when the last of the Pythagoreans and Plato were still alive, say around 370; back then, Heraclides "had been a fan" of Plato's work (though not necessarily his 'student'). The final clause looks forward to the period after Speusippus' death, when Heraclides attended Aristotle's lectures. In chronological terms, the sequence of scholarly affiliations thus runs Pythagoreans and Plato; Speusippus; and Aristotle. If Heraclides, like Aristoxenus, heard any Pythagoreans teach, it could not have happened any later than the 360's; his visits to the school of Aristotle probably date to the 330's.

Several anecdotes underscore Heraclides' closeness to Plato, though they are rather late: one maintains that he made a record of Plato's lecture on The Good (Simplicius, *On Aristotle's Physics* 3.4), another that he was sent by Plato to collect the poetry of Antimachus (Proclus, *On Plato's Timaeus* 28c). The *Suda*'s claim that Heraclides took over management of the Academy while Plato was in Sicily is not recorded anywhere else (8). If authentic, it would put Heraclides' birth no later than the 380's BCE, since Plato's last trip to the island was in 361 and he would certainly not have left his school in the hands of an eccentric twenty-something.

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[395] Schwartz 1909, 481n1; tentatively endorsed by Gottschalk 1998, 3.

[396] As in *Lives* 1.38, 8.1, 9.34, etc.

After sorting through the evidence we can narrow down Heraclides' year of birth in the following way. Place it around 400 BCE and he becomes implausibly old at the time of his interaction with Dionysius; place it around 380, and his candidacy for head of the Academy in the 339 seems unlikely. A birth date within a year or two of 390 enables us to avoid the Scylla and Charybdis of these extremes and accommodate the remainder of the evidence.

Estimated objective dates for Heraclides:

around 390 BCE:	born
early 360's:	becomes acquainted with Plato, Pythagoreans
after 347:	is attached to Speusippus
339:	loses election to become head of Academy
330's, 320's, 310's:	associates with various members of the Lyceum

Appendix: Numerical Rules of Thumb in Apollodorus?

In order to determine the year of birth of individuals for whom no birthdate was attested, Apollodorus would often synchronize the year of a datable achievement with their acme or 40th year; this assumption allowed him to estimate when the person were born by counting back 40 years from the year in question.[397] Felix Jacoby showed that this rule was not an Apollodoran invention but rather a distillation of common Greek lore regarding the 'ages of life', lore that scholars before and after Apollodorus shared.[398] But where Apollodorus did innovate, according to Jacoby, was in extending this rule; citing the Apollodoran dates for the pairs Thales/Pherecydes, Parmenides/Zeno, Anaxagoras/Democritus, and Zeno the Stoic/Persaeus, he posited that Apollodorus would occasionally arrange his timeline in such a way that students were 40-years younger than their teachers.[399] Alden Mosshammer argued that Apollodorus made use of another numerical heuristic, adjusting the chronology of certain trios of individuals to ensure that at certain key dates one would be 25, the second 40, and the third 64 years old. These particular numbers were chosen because they form a geometric proportion based on the number 40: 64 stands in the same ratio to 40, 8:5, that 40 stands to 25, the 8:5 ratio deriving from Pythagorean harmonic science.[400] This rule helped determine the birth dates

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[397] Jacoby 1902, 48, lists a representative set of examples.
[398] ibid. 41–48.
[399] ibid. 48.
[400] Mosshammer 1976b.

Apollodorus assigned to the philosophers Anaximander, Anaximenes, and Pythagoras, as well as the tragedians Aeschylus, Sophocles, and Euripides.

There is nothing *prima facie* implausible to the notion that Apollodorus used such rules to cover gaps in the chronological evidence. But caution is in order. For one, a key premise behind such assertions is that we know what dates Apollodorus assigned the figures in question. In fact, these dates have usually been reconstructed from second- or third-hand reports in such a way that alternative reconstructions cannot be ruled out. Furthermore, in his original text Apollodorus gave archon dates that were precise to a single year, while the sources we rely on typically express years in terms of whole Olympiads, which fall in four-year increments. This means it is very difficult to find clear-cut examples of, say, a 40-year interval: acme dates for a teacher and student separated by ten Olympiads are compatible with an Apollodoran interval of as many as 43 or as few as 37 years. To count as valid illustrations, the relevant data must be demonstrably Apollodoran, and exhibit the desired intervals with one-year precision. When these standards are applied, none of the examples cited by Jacoby as evidence for the 40-year teacher-student rule stand up, nor do those cited by Mosshammer for the 64/40/25 trio rule.

Let us start with Jacoby's evidence. His first example of a 40-year teacher-student interval involves Thales and Pherecydes. Now the fragment of Aristotle quoted by Jacoby says, not that Pherecydes was a student of Thales, but that he disagreed with him (PHERECYDES 1.A). But let us set aside that quibble and focus on his key claim, which is that Pherecydes' floruit in Olympiad 59 falls exactly ten Olympiads later than Thales' floruit in Olympiad 49. The central problem with this assertion is that, according to the transmitted text of Diogenes, Apollodorus set Thales' birth in the first year of the *35th* Olympiad, which puts his floruit

in Olympiad 45.1, or 600/599 BCE. Diels' proposed emendation of Diogenes' text is, as I have shown in chapter one, both problematic and unnecessary; without it, the interval disappears.[401] Second, the only year-precise date preserved for Pherecydes' floruit is Eusebius' 541/0 (PHERECYDES 10.A), which actually falls 43 years later than Jacoby's floruit for Thales, 584/3, not 40 years. The example is thus a weak one.

For his second illustration, Jacoby maintained that Apollodorus put the Eleatic Zeno's floruit in the 79th Olympiad, 40 years later than Parmenides' floruit in the 69th. Jacoby considered this a remarkable confirmation of his hypothesis that Apollodorus used numerical combinations, since the chronographer apparently preferred the results generated by this rule to the plain evidence of Plato's text in the *Parmenides*.[402] From the same data I would draw precisely the opposite conclusion: given that Apollodorus would have had no reason to question Plato's authority, something must be wrong with the proposed reconstruction. The claim that Zeno's floruit was in Olympiad 79 rests entirely on a textual emendation; the transmitted text of Diogenes puts his acme in the 9th Olympiad, which while obviously corrupt does not point to an obvious emendation. It is also significant that Diogenes does not attach his floruits for Zeno and Parmenides to any named authority. As I have argued above, such unattributed Olympiad datings come from a source, Chronographer P, who in some cases deviated from Apollodorus' indications, giving, for instance, incorrect versions of Apollodorus' dates for Pythagoras and Xenophanes.[403] The fact that a chronology for Zeno's and Parmenides' lives faithful to Plato's indications survived in the late tradition (PARMENIDES 8.A, ZENO 5.A, 6) shows that *some* Hellenistic chronicler must have accepted the

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[401] See page 81.
[402] Jacoby 1902, 48.
[403] On the source, see pages 38–40.

evidence of Plato's text, and there is no better candidate for such a person than Apollodorus. Finally, as was just pointed out, an attested interval of ten Olympiads need not imply that Apollodorus' interval was exactly 40-years. Even if we accept the emendation of Zeno's biography and grant that Parmenides' and Zeno's prime years fell in the 69th and 79th Olympiads, this could correspond to Apollodoran prime years falling anywhere between 504/3 and 501/0 BCE in the case of Parmenides, and anywhere between 464/3 and 461/0 in the case of Zeno.

Anaxagoras' and Democritus' dates form what is at first glance a much more compelling illustration of the proposed rule; Jacoby is surely right that Apollodorus put their years of birth 40 years apart. However, Apollodorus' interval was derived, not from a rule of thumb, but from Democritus' own statement about their age gap – the plain meaning of DEMOCRITUS 1.A is that the Abderite himself was the one who claimed to be 40 years younger than Anaxagoras. Thus this example cannot count as evidence for the employment of an artificial rule on the part of Apollodorus.

The fourth and last illustration involves Zeno the Stoic and his student Persaeus. Diogenes cites Apollodorus for Persaeus' acme, which he says fell somewhere in the 130th Olympiad (*Lives* 7.6) – unfortunately, we do not know which of the four years 260/259 BCE, 259/8, 258/7, or 257/6 he meant to pinpoint. As for Zeno, no statement about his life cites Apollodorus as an authority, which means that whatever dating he gave is purely a matter of conjecture. Zeno's year of death is securely attested: Eusebius (via Jerome, *Chronicle* 131b) places his death in 264/3, and this is confirmed by a statement in a Herculaneum papyrus, the so-called *Index Stoicorum*.[404] To determine a floruit for Zeno, this datum must be combined with additional clues, either a year of birth or a

[404] Armstrong 1930, 360. A posthumous Athenian decree in Zeno's honor dates to 262/1 BCE (Diogenes Laertius, *Lives* 10).

lifespan. Diogenes discusses Zeno's lifespan in a passage whose interpretation is disputed. He begins by making an unsourced claim that Zeno lived to be 98: "He passed away after living 98 years, disease-free and healthy to the end" (7.28). The next two sentences read: Περσαῖος δέ φησιν ἐν ταῖς ἠθικαῖς σχολαῖς δύο καὶ ἑβδομήκοντα ἐτῶν τελευτῆσαι αὐτόν, ἐλθεῖν δὲ Ἀθήναζε δύο καὶ εἴκοσιν ἐτῶν. Ἀπολλώνιός φησιν ἀφηγήσασθαι τῆς σχολῆς αὐτὸν ἔτη δυοῖν δέοντα ἑξήκοντα. Jacoby interpreted this to mean, "Persaeus says in his *Ethical Lectures* that [Zeno] died at 72 years, and that he came to Athens being 22 years old. Apollonius says that he led his school for two shy of 60 years." In his view, Apollodorus must have accepted Persaeus' claim that Zeno died at 72 and rejected Apollonius (considered to be the source for the 98-year lifespan as well as 58-years as scholarch), since the resulting chronology makes better fit with other events in Zeno's life, e.g. his studying with Polemon as a young man.[405] On this interpretation the Apollodoran date for Zeno's birth would be 335/5, and his prime would fall in 296/5. Counted inclusively, the 40th year after his prime would be 257/6, which is indeed one of the 4 years of the Olympiad containing Persaeus' floruit – though, once again, we cannot be sure that this is the exact year Apollodorus intended.

There are several problems with Jacoby's interpretation, however. Zeno describes himself as being in his eighties in a letter to Antigonus quoted by Diogenes – a spurious document, perhaps, but valuable as a witness to the vulgate tradition regarding his life (7.9); Lucian gives Zeno's lifespan as 98 years (*Long Lives* 19); and no work entitled *Ethical Lectures* appears in Diogenes' list of Persaeus' writings (7.36). In view of these considerations Armstrong has argued that the first sentence in the Greek quoted above should be taken to mean, "Persaeus says that

[405] Jacoby 1902, 364/5.

[Zeno] completed 72 years in his ethical studies and came to Athens at age 22," i.e. he spent 72 years at Athens either as a teacher or a student, and died at age 93 or 94.[406] Armstrong's interpretation accommodates a wider range of evidence than Jacoby's, and if it is correct, the 40-year gap between Zeno and Persaeus vanishes. Combine this with the uncertainty surrounding Persaeus' exact date and the fact that we do not know which if any of Diogenes' statements about Zeno go back to Apollodorus, and the evidence for a 40-gap becomes scarce indeed. The upshot of this discussion is that while we cannot prove the negative hypothesis – that Apollodorus *never* made use of such a rule – we do not have a single clear-cut instance of its employment.

The illustrations Mosshammer offers for a hypothetical triplet rule are equally problematic. In the first example he cites, Apollodorus is supposed to have posited that Anaximander, Anaximenes, and Pythagoras were 64, 40 and 25 years old respectively in 547/6 BCE. If one follows the Standard Dating for these figures, this claim is true: Anaximander, born in 610/9, was 64 in 547/6, Anaximenes was in his prime that year, and Pythagoras, whose acme fell in 532, was 25 years old. But I have argued at length in chapters two and three that the Apollodoran datings for all three figures were in fact very different. Once Diels' rewritings of the Milesian biographies are reversed, it becomes clear that Apollodorus merely followed the Theophrastan and Hellenistic consensus about their dates. As for Pythagoras, it cannot be stressed enough that among the dozens of testimonia for his chronlogy, not a single one expressly places his *acme* in the year 532. According to the reconstruction of Apollodorus' dates proposed in this study, Anaximander, like Pythagoras, was born around 562, and Anaximenes was born around 528 – dates which are wholly inconsistent with a

[406] Armstrong 1930.

64/40/25 age triplet. Even if one accepts the validity of the Standard Dating, it remains worrying that the three persons in question do not form a natural set. Anaximenes and Pythagoras are both described as students of Anaximander, it is true, but no source describes a relationship between Anaximenes and Pythagoras; Anaximenes, like Anaximander, was usually classified as a member of the Ionian school, while Pythagoras is part of the Italian. It is also suspicious that more obvious trios such as Thales, Anaximander, and Anaximenes, or Xenophanes, Parmenides, and Zeno, do not fit this supposed pattern, while the more ad hoc grouping of Anaximander, Anaximenes, and Pythagoras does.

Mosshammer's second example involves the tragedians Aeschylus, Sophocles, and Euripides, who are said to have been 64, 40, and 25 years old in 456/5 BCE. Now the evidence for the Apollodoran ages of Sophocles and Euripides is quite clear: Diodorus Siculus says that, according to Apollodorus, Sophocles and Euripides both died in the same year, 406/5, Sophocles at age 90 (*Library of Hisotry* 13.103.5). A report from Diogenes Laertius which is likely Apollodoran in origin says that Euripides was born in 480/479 (Diogenes Laertius, *Lives* 2.45). So there is very good reason to think that in Apollodorus' reckoning Sophocles was 40 and Euripides 25 years old in 456/5. Unfortunately the dates for the third member of the trio, Aeschylus, do not fit the pattern.[407] The whole of the actionable evidence for Aeschylus' birth, death, and age at death is as follows:

Parian Marble 48, 59
"… the poet Aeschylus fought in it [sc. the Battle of Marathon], age 35."
That is, he was born in 525/4.

[407] See Sommerstein 1989, 17/8, for a plausible reconstruction of Aeschylus' key dates.

"193 years since the poet Aeschylus, who lived 69 years, died in Gela, Sicily, in the archonship of the first Callias."
That is, he was born in 524/3, and died in 456/5.

Life of Aeschylus 3, 13
"[Aeschylus] was contemporary with Pindar, having been born in the 40th (sic) Olympiad… he lived for [63][65][68] years."
40th Olympiad: 620 to 616 BCE
(The lifespan is variously transmitted in the manuscripts.)

Life of Sophocles 2
"[Sophocles] was 7 years younger than Aeschylus."
Sophocles' birth year: 495 BCE

scholia to Aristophanes' *Acharnians* 10
"[Aeschylus] died in the archonship of the Callias who came after Mnesitheus, 30 years (sic) earlier [than Sophocles]."
Callias' archonship: 456/5 BCE

Aulus Gellius, *Attic Nights* 17.21.9–11.
"In the 260th year from the foundation of Rome or a little thereafter, tradition holds that the Persians were defeated by the Athenians in the famous battle of Marathon; after this triumph the general Miltiades was condemned by the Athenians and died in public captivity. At that time the tragic poet Aeschylus was noticed at Athens. In Rome at just about the same time the plebs elected their own tribunes and aediles as part of a revolt, and shortly thereafter Cn. Marcius Coriolanus, provoked and harassed by a plebian tribute, defected to the enemy Vulsci and waged war on the Roman people."
A.U.C. 260: 494 BCE Marathon: 490 Coriolanus: ca. 488

Eusebius, *Chronicle*
via Jerome, *Chronicle* 107[h]
"Olympiad 71.1: Aeschylus the writer of tragedies is noticed."
Olympiad 71.1: 496/5 BCE
via Jerome, *Chronicle* 109[g]
"Olympiad 75.4: Aeschylus the writer of tragedies is noticed."
Olympiad 75.4: 477/6

The *Suda* 'Aiskhylos' (*alphaiota*-357)
"He competed in the ninth Olympiad (sic) at age 25… He died after living 58 years."

The Parian Marble and the Aristophanes scholia offer a solid point of departure, setting Aeschylus' death in 456/5 BCE. However, not one of our sources states or implies that Aeschylus was 64 years old when he died or – what amounts to the same thing – was born in 519/8. Mosshammer inferred that Apollodorus arrived at this result by sychronizing Aeschylus' acme with the battle of Salamis in 480, but this conjecture is unsupported by any surviving testimony. The evidence from later sources is corrupt and inconsistent, and shows no sign of a consensus dating which might be traced back to Apollodorus.[408] In short, no interval fits Mosshammer's 64/40/25 pattern other than the 15-year gap between the ages of Sophocles and Euripides – hardly enough to hang such a bold claim upon. The numbers in question are also unlikely to be significant, since, as Alan Bowen has shown, the 8:5 ratio played no part in Pythagorean harmonics before the time of Apollodorus.[409]

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[408] The testimony of the Parian Marble is both plausible and early, and should be considered authoritative for Aeschylus' objective dating.
[409] Bowen 1978.

Such evidence as we have for Apollodorus offers no support for the 64/40/25 rule, or the 40-year teacher-student rule.

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Timeline

The entries on the following timeline differ greatly in their level of precision: for some we know the exact year or day when the events in question took place, while for others even the decade is uncertain. Entries that can be precisely specified are aligned with specific year numbers on the timeline, while those that cannot are assigned to the appropriate decade. When multiple vaguely defined entries fall within a given decade, I have put them in what strikes me as a plausible order. Since this order is oftentimes just a guess, not backed by any specific testimony, it should not be seen as superseding or implying greater knowledge than the estimated objective chronologies given in the main text. Items with question marks are informed guesses, whose rationales can be found in relevant case studies.

Year	Events (Mainland Greece)	Events (Magna Graecia)
590 BCE		
585	May 28: Solar eclipse (Thales)	
580		
570		

Year	Events (Mainland Greece)	Events (Magna Graecia)
560		
550		
548	Pythagoras' boxing victory?	
547	Thales assists Croesus.	
	Xenophanes, age 26, departs Colophon.	
	Anaximander turns 20.	
540		
530		
		Xenophanes in the west?
	Pherecydes' treatise?	
	Pythagoras captured in Egypt.	
520		
	Scylax' voyage.	Pythagoras in Croton.
	Democedes' Persian adventure.	
	Cleostratus' poem.	
	Lasus' treatise?	
510		
	Hecataeus' treatise.	Pythagoras active.
	Heraclitus' treatise?	Xenophanes active.
	Anaximenes turns 20.	
500		

Year	Events (Mainland Greece)	Events (Magna Graecia)
498	Anaximander's treatise.	
	Anaximander in Apollonia?	Pythagoras to Metapontum.
	Scylax' treatise.	Parmenides turns 20; he meets Xenophanes.
		Alcmaeon turns 20.
490		
480		
479	Anaxagoras turns 20.	
		Xenophanes at Syracuse.
		Parmenides turns 40.
		Empedocles, 20, meets Parmenides, Pythagoras.
		Zeno meets Parmenides.
		Pythagoras dies.
470		
468	Aegospotami meteorite (Anaxagoras, Diogenes discuss.)	
465	Spartan earthquake (Anaximenes, Anaxagoras discuss.)	Alcmaeon active.
463	April 30: solar eclipse (Anaxagoras discusses?)	
460	Anaxagoras turns 40.	

Year	Events (Mainland Greece)	Events (Magna Graecia)
456	Anaxagoras comes to Athens. Leucippus active. Hippasus active.	Empedocles turns 40. Parmenides, Zeno visit Athens.
450		
	Anaxagoras, Oenopides, Diogenes, Archelaus, Leucippus active.	Empedocles, Hippasus, Hippo(?), Empedocles active. Philolaus turns 20. Pythagoreans active.
440	Melissus is general at Samos and Democritus turns 20.	
		Pythagoreans attacked.
436	Anaxagoras' trial. Oenopides, Diogenes, Archelaus active.	Empedocles dies. Hippasus, Hippo active.
433/2	Meton observes solstice.	
430		
428	Anaxagoras dies. Theodorus?, Antiphon active.	
423	Bright comet (Hippocrates discusses?)	
421	Democritus' *Short Cosmology*.	
420		
	Theodorus, Hippocrates active. Antiphon writing.	
415/4	Meton famous at Athens. Euctemon active.	Ecphantus and other Pythagoreans active.
411	Antiphon killed.	

Year	Events (Mainland Greece)	Events (Magna Graecia)
410		
	Philolaus active in Thebes?	
	Democritus, Theodorus active.	Ecphantus and other Pythagoreans active.
407	Euctemon archon?	
406	Plato turns 20.	
		Philolaus, Eurytus return to Italy?
400		
399	Theaetetus meets Socrates.	
	Plato travels.	Archytas turns 20.
	Democritus, Theodorus active.	
390		
	Metrodorus active?	
384		Plato visits Italy and Sicily, meets Philolaus and Eurytus.
	Plato returns to Athens, founds Academy.	
380		
378/7	Eudoxus visits Athens, Egypt.	
	Plato writing and teaching.	Archytas active.
373/2	Bright comet (Democritus discusses).	
	Metrodorus active.	
	Democritus dies.	
	Heraclides turns 20.	
370		
369	Theaetetus dies.	
366		Plato's 2nd visit to Sicily.

Year	Events (Mainland Greece)	Events (Magna Graecia)
365	Aristotle turns 20. Plato writing, teaching. Eudoxus active at Cyzicus.	Aristoxenus meets 'last Pythagoreans'. Archytas elected general at Tarentum.
361/0		Plato's 3rd visit to Sicily.
360	Plato writing, teaching. Eudoxus active at Cyzicus.	
350		
348/7	Plato dies. Eudoxus dies? Heraclides active.	